

1 UNITED STATES DISTRICT COURT  
2 EASTERN DISTRICT OF TENNESSEE

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4 ROCKY WATERS MOUNTAIN INN, LLC,  
5 Plaintiff,  
6 v. Docket No. 3:19-CV-6  
7 THE TRAVELERS INDEMNITY  
8 COMPANY OF AMERICA,  
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10 Defendant.  
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VIDEOTAPE DEPOSITION  
OF  
NEIL G. CARLSON  
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Taken February 28, 2020 By Christine M. Clark, RPR

**Videotape Deposition of Neil G. Carlson - 2/28/2020**  
**Rocky Waters Mountain Inn, LLC v. The Travelers Indemnity Company of America**

Page 2	1 APPEARANCES: 2 3 MCWHERTOR SCOTT & BOBBITT PLC 4 54 Exeter Road 5 Suite D 6 Jackson, Tennessee 38305 7 Phone: 731.664.1340 8 Email: cscott@gilbertfirm.com 9 10 By: Clinton H. Scott 11 (Appearing telephonically) 12 For the Plaintiff 13 14 FORAN GLENNON PALANDECH PONZI & RUDOLPH PC 15 222 North LaSalle Street 16 Suite 1400 17 Chicago, Illinois 60601 18 Phone: 312.863.5000 19 Email: bdevilling@fgppr.com 20 21 By: Brian E. Devilling 22 For the Defendant 23 24 ALSO PRESENT: 25 Stephen Smith, Legal Videographer
Page 4	1 THE VIDEOTAPE DEPOSITION of NEIL G. CARLSON is taken on 2 this 28th day of February 2020, at Benchmark Reporting 3 Agency, 450 South Ninth Street, Suite 450, Minneapolis, 4 Minnesota, commencing at 12:55 p.m. 5 THE VIDEOGRAPHER: Good afternoon. We are 6 on the record, and the time is 12:55 p.m. This is the 7 videotaped deposition of Neil Carlson, in the matter of 8 Rocky Waters Motor Inn v. The Travelers Indemnity 9 Company of America, Case Number 3:19-CV-6, filed in the 10 United States District Court, Eastern District of 11 Tennessee. 12 The court reporter's name is Christine Clark. My 13 name is Stephen Smith, the legal videographer. We are 14 with Benchmark Reporting Agency. 15 Would the attorneys present please introduce 16 themselves? 17 MR. DEVILLING: Brian Devilling, for 18 Travelers. 19 MR. SCOTT: Clint Scott, for the plaintiff. 20 THE VIDEOGRAPHER: Thank you very much. The 21 court reporter will now swear in the witness and then 22 we can proceed. 23 NEIL G. CARLSON, 24 a witness in the above-entitled action, 25 after having been first duly sworn,
Page 3	1 INDEX 2 3 Examination by Mr. Devilling, Page 5 4 5 INDEX OF EXHIBITS 6 7 NUMBER DESCRIPTION 8 1 Mr. Carlson's CV, Page 7 9 2 January 13, 2018 Report, Rocky Waters Motor 10 Inn, Page 19 11 3 January 13, 2018 Report, Days Inn, Page 20 12 (Exhibits marked prior to deposition.) 13 14 15 16 17 18 19 20 21 22 23 24 25
Page 5	1 deposes and testifies as follows: 2 EXAMINATION 3 BY MR. DEVILLING: 4 Q. Hello, Mr. Carlson. My name is Brian Devilling. I 5 represent Travelers in the Rocky Waters Motor Inn versus 6 Travelers Indemnity case. 7 Have you given a deposition before? 8 A. Yes, I have, sir. 9 Q. All right. How many times? 10 A. Between less than 20, but more -- probably more than 10. 11 Q. Okay. Standard ground rules apply. If you could wait 12 -- wait to give your answer until I'm done asking my 13 question. Okay? 14 A. Yes, sir. 15 Q. And if you need a break at any time, let me know. Okay? 16 A. I will, sir. 17 Q. And if you can answer yes or no as opposed to uh-huh or 18 uh-uh, it makes it easier for the court reporter to 19 transcribe. 20 A. Yes, sir. 21 Q. And if you don't understand a question that I ask, just 22 let me know and I'll rephrase it. 23 A. Thank you, sir. 24 Q. What is your current employment position? 25 A. I am currently employed at the University of Minnesota

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**Videotape Deposition of Neil G. Carlson - 2/28/2020**  
**Rocky Waters Mountain Inn, LLC v. The Travelers Indemnity Company of America**

Page 6

1 Department of Environmental Health and Safety, as an  
2 industrial hygienist and as a public health specialist,  
3 and I also do consulting work as President of N.G.  
4 Carlson Analytical. And I'm representing N.G. Carlson  
5 Analytical and not any way affiliated with the  
6 University of Minnesota with respect to this case.  
7 Q. Okay. All the work you did in this case is through N.G.  
8 Analytical, correct?  
9 A. That is correct, sir. Yes.  
10 Q. I'm sorry. N.G. Carlson Analytical.  
11 A. That's correct. N.G. And I think, for legal purposes,  
12 I think it's N.G. Carlson Analytical, Inc., but...  
13 Q. Okay. In your position with the University of  
14 Minnesota, do you do any teaching?  
15 A. I do adjunct faculty teaching, yes, sir.  
16 Q. And what courses do you teach?  
17 A. I assist with teaching a course in laboratory analysis  
18 for industrial hygiene students. I teach a course on  
19 indoor air with respect to housing and housing  
20 inspection for a group on the St. Paul campus. I also  
21 teach an architecture class on indoor air quality, and  
22 these are typically one to two session pieces. I'm --  
23 I'm assisting the -- the faculty member. I also teach a  
24 course with the Midwest Center on fungal remediation,  
25 and we do that as needed.

Page 7

1 Q. Have you taught any courses on -- or portions of any  
2 courses on any topics related to wildfire analysis?  
3 A. No courses on wildfire analysis, sir.  
4 Q. Okay. I'll show you what we've marked as Exhibit 1. I  
5 believe this is a copy of your CV, correct?  
6 A. Yes, sir. That is.  
7 Q. All right. And can you just look through it and let me  
8 know if it's current?  
9 A. It's the most current one that I put together, yes.  
10 Q. Any additional seminars, publications, licenses, degrees  
11 that need to be added to this to make it complete?  
12 A. Well, let me look. Let me see if they have the one. I  
13 think the one that might be relevant to this case is  
14 that I reviewed a webinar, although I did not attend it.  
15 It was on smoke and soot analysis, from EMLab P&K. So I  
16 don't know if that one's listed here, but I think that  
17 would be the relevant one.  
18 Q. Okay.  
19 A. There are probably other ones, but I don't think they'd  
20 be relevant to this case.  
21 Q. Can you point me to aspects of your CV that are -- that  
22 you consider relevant to wildfire analysis?  
23 A. I don't think I'd have any specific ones with respect to  
24 wildfire analysis.  
25 Q. Okay. How about same -- same question, just slightly

Page 8

1 different. How about with respect to analyzing debris  
2 from a wildfire?  
3 A. Nothing specific to analyzing debris from a wildfire.  
4 Q. Okay. Let's see. You're -- what was your undergraduate  
5 degree?  
6 A. Biology, with a minor in chemistry.  
7 Q. Okay. That's from the University of Minnesota, Morris,  
8 correct?  
9 A. That is correct, yes.  
10 Q. And then you got an MS in General Environmental Health,  
11 correct?  
12 A. Yes. From the University of Minnesota.  
13 Q. Was any of your training for your Master's in General  
14 Environmental Health specifically pertinent to wildfire  
15 debris or wildfire analysis?  
16 A. Not specific to wildfire analysis.  
17 Q. Okay. Excuse me. At this point in your career, have  
18 you -- I assume that you've analyzed debris under a  
19 microscope on multiple occasions for the purpose of  
20 determining whether it was a -- contains wildfire  
21 residue?  
22 A. Let's see. Yes. And it wouldn't be specific to  
23 wildfire residue, if I may add. It would be soot or  
24 char, irrespective of what the source was.  
25 Q. Okay.

Page 9

1 A. Does that clarify?  
2 Q. Yes.  
3 A. Okay.  
4 Q. Yes, it does. Do you know how many -- how many cases  
5 you've been involved in or analyzed involving claims  
6 that wildfire debris has caused damage to property?  
7 A. I wouldn't know the exact one because when I get the  
8 reports it doesn't specify whether it was a building  
9 fire. So an internal source or an external source  
10 wildfire. So I couldn't give you a precise number on  
11 that. I can give you a range, if that would be helpful.  
12 Q. Sure.  
13 A. I would say more than probably 20 and definitely less  
14 than 100.  
15 Q. Okay. How many times have you analyzed debris for the  
16 purpose of determining the level of soot or char in the  
17 debris?  
18 A. That would be more than 100, less than 200.  
19 Q. Okay. Are you the sole owner of N.G. Carlson  
20 Analytical, Inc.?  
21 A. Yes, sir.  
22 Q. Okay. And how long has that company been in existence?  
23 A. That company has been in existence -- and if you  
24 wouldn't mind, sir, I will refer to here.  
25 Q. Certainly.

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**Rocky Waters Mountain Inn, LLC v. The Travelers Indemnity Company of America**

Page 10

1     **A. So I will make sure I get an accurate -- accurate date**  
2     **on that. Let's see here.**  
3     Q. And just, for the record, what are you looking at?  
4     **A. I'm looking at -- sorry. Thank you, sir. I am looking**  
5     **at my CV.**  
6     Q. Oh, okay.  
7     **A. Thank you for asking that. If you don't mind, sir, I**  
8     **have taken a photo of that particular piece of**  
9     **information on my cell phone, and I can refer to that to**  
10    **give you a correct date. Would that be acceptable to**  
11    **you?**  
12    Q. Well, has the company been around for more than 10  
13    years?  
14    **A. Yes. It was approximately -- and the date is**  
15    **approximately '96.**  
16    Q. Okay. And what does N.G. Carlson Analytical do?  
17    **A. N.G. Carlson Analytical does fungal -- fungal spore**  
18    **analysis. I've also done ergonomic analysis, although**  
19    **that's not my primary work. Indoor air quality**  
20    **assessments. I'll do home assessments for indoor air**  
21    **quality, both viable, nonviable fungal spore analysis.**  
22    **And then I'll do particulate analysis with respect to**  
23    **soot, char analysis, and that started September of 2 --**  
24    **2011 is when we started doing that.**  
25    Q. Okay. About what percentage of your work in the last

Page 11

1     year has involved analysis of fire debris as opposed to  
2     analysis for fungal spores?  
3     **A. I'm going to give you a rough estimate in a range. I**  
4     **would say probably -- because some of it is actually**  
5     **mixed. So it's going to be a little difficult, and I**  
6     **actually do both on a dataset, but, if you count both, I**  
7     **would say between probably 50 and 75 percent.**  
8     Q. Okay. Can you give me examples of the types of people  
9     or entities that hire N.G. Carlson Analytical?  
10    **A. Sure. There's been primarily two companies that hire**  
11    **it. And I'm assuming -- are you -- point of**  
12    **clarification, sir. Are you looking at primarily just**  
13    **the soot and char, or are you looking at fungal, soot**  
14    **and char?**  
15    Q. Everything.  
16    **A. Everything. Okay. The first one would be personal**  
17    **homeowners that -- and there would be a wide variety of**  
18    **them that would call and just say I've got a mold**  
19    **problem and I need somebody to take a look at it about.**  
20    **The second one would be FBS, and then there's also a**  
21    **company, PCG, I believe, that has also had me do work.**  
22    **There are a couple other companies. Their names escape**  
23    **me, but they're similar, similar structure to what PCG**  
24    **and FBS would be with respect to sending me samples and**  
25    **then asking me to do analysis.**

Page 12

1     Q. Okay.  
2     **A. Is that helpful?**  
3     Q. Yeah. So with respect to all of your work --  
4     **A. Mm-hmm.**  
5     Q. -- whether it's related to mold spores or related to  
6     soot and char analysis, can you tell me what percentage  
7     of your work comes from personal homeowners who ask you  
8     directly to analyze some sort of --  
9     **A. Yeah.**  
10    Q. -- substance?  
11    **A. I would say homeowners are -- represent -- it varies**  
12    **annually, but definitely represent less than 25 percent.**  
13    Q. Okay. And then how about FBS?  
14    **A. It varies each year. I would say probably around**  
15    **roughly 40 percent. It varies. Forty, 40 to**  
16    **50 percent.**  
17    Q. And when you say FBS, you're talking about Forensic  
18    Building Sciences, correct?  
19    **A. Yes, sir. Forensic Building Sciences.**  
20    Q. That's Tom Irmiter's company?  
21    **A. That's correct. Yes, sir.**  
22    Q. Then what does PCG stand for?  
23    **A. I would have to look that up. I'm not sure. I've just**  
24    **seen PCG, and it's a -- I believe it's a -- it looks**  
25    **like a law firm or something like that, and they have --**

Page 13

1     **they do primarily work with fire cases, and they also do**  
2     **some work that apparently runs into some mold issues.**  
3     Q. Okay. Do personal homeowners, have they ever contacted  
4     you directly to analyze fire debris, or is that more the  
5     mold issues?  
6     **A. I'm trying to think if anyone's ever done that. I think**  
7     **primarily the personal homeowners are -- are fungal.**  
8     Q. Okay. And how about in terms of the work that you said  
9     that 40 percent of your overall work comes from Forensic  
10    Building Sciences? Is that a mix of fire debris and  
11    mold analysis?  
12    **A. Yes. Lately -- and that shifted. When I first started**  
13    **out, it was -- prior to 2000, it was all mold analysis.**  
14    **And then the percentage has shifted over to higher soot**  
15    **and char analysis as we've progressed.**  
16    Q. Have you ever done a soot and char analysis for anyone  
17    other than FBS?  
18    **A. Yes. The PCG would be one, and then there's a -- there**  
19    **was another company who just sent me one -- I can't**  
20    **recall their name -- just recently. And I -- there's a**  
21    **couple other companies, and I don't remember. I've only**  
22    **done, I would say less than 10 percent business, but I**  
23    **can't recall their names.**  
24    Q. Are the other companies also law firms?  
25    **A. I do not know.**

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**Videotape Deposition of Neil G. Carlson - 2/28/2020**  
**Rocky Waters Mountain Inn, LLC v. The Travelers Indemnity Company of America**

Page 14

1 Q. Okay.

2 **A. Or I do not know, or I do not recall.**

3 Q. About how many times have you analyzed debris for

4 Forensic Building Sciences, whether it be for mold or

5 for soot and char?

6 **A. That's a -- I -- I don't recall for sure. I can give**

7 **you a range that it's -- let's see. It would be more**

8 **than -- definitely more than 200, probably less than**

9 **600.**

10 Q. Okay.

11 **A. Just to make sure I'm accurate.**

12 Q. Somewhere in there?

13 **A. Somewhere in that range --**

14 Q. All right.

15 **A. -- sounds good.**

16 Q. Do you know how many times you've analyzed soot and char

17 for FBS?

18 **A. It would be -- I'm going to guess it's -- well, I don't**

19 **want to say guess because I was attempting to determine**

20 **that before, looking through, and my emails didn't go**

21 **back to when I started as far as doing a count. So it**

22 **is more than 50 but less than probably 150, at my best**

23 **estimate.**

24 Q. Okay. When you get a -- well, when FBS sends you a

25 sample they want analyzed, how does that communication

Page 15

1 happen? Is it by email or phone or what?

2 **A. It can come several different ways. Primarily,**

3 **sometimes I will just get a package without any email**

4 **communication, and then I will do the analysis.**

5 **Sometimes I will get a -- a phone call just saying are**

6 **you available, we have samples coming. Not often that**

7 **I'll get an email notification of the way -- maybe**

8 **sometimes I will. In this case, as far as when I look**

9 **through the email chains, I didn't see an email coming**

10 **beforehand.**

11 Q. Okay. Can you describe -- just if I -- well, first of

12 all, where is your lab located?

13 **A. I do my analysis at two locations. One is I have a**

14 **microscope set up in my home, in my residence. Do you**

15 **need the address of that?**

16 Q. No, I don't need the address.

17 **A. Okay. All right. So I have a lab set up in my home.**

18 **And then I also use a microscope that I have available**

19 **at the lab at the University of Minnesota.**

20 Q. All right.

21 **A. But primarily most of the work is done at home.**

22 Q. What kind of microscope?

23 **A. It is -- the one at the lab is a -- it's a light**

24 **microscope. It is an Olympus. I don't know the exact**

25 **name of it. It's got 4X, 10X, 40X and 60X are the ones**

Page 16

1 **that I use on that one, and the -- and the name of the**

2 **scope that I have is escaping me. It's essentially a**

3 **light microscope. I don't recall the brand for the one**

4 **at home. And then I have 4X, 10X, 20X, 40X and 60X that**

5 **I use for analysis, and it's a light, both are light**

6 **microscopy.**

7 Q. Okay. Do you have any equipment that can go beyond 60X?

8 **A. I can, but I don't use that typically. There's an oil**

9 **immersion setting, and I typically don't go -- don't go**

10 **to that.**

11 Q. Okay. So do you have any other equipment that you

12 consider part of the laboratory?

13 MR. SCOTT: Object to the form.

14 **A. I -- I don't understand --**

15 Q. (MR. DEVELLING) Sure.

16 **A. -- exactly what you're -- you're talking about.**

17 Q. Sure. Do you have any other equipment that you use to

18 analyze debris samples, other than those two

19 microscopes?

20 **A. Well, let's just say I'll -- to maybe help clarify, I**

21 **use microscope slides. I use mounting fluids. I use**

22 **coverslips. I use a 3M red tartan Scotch tape. Let's**

23 **see if there's anything else. I may use something to**

24 **break a sample up a little bit if it's too compact, some**

25 **mechanical piece. Tweezers. That -- I think that would**

Page 17

1 **approximately be it.**

2 Q. Okay. Do you have any equipment that's capable of doing

3 an elemental analysis of any debris?

4 **A. I don't -- as you asked it, I'm not doing anything other**

5 **than visual light microscopy analysis. I'm not doing a**

6 **chemical analysis. Was that what you were asking?**

7 Q. Yes.

8 **A. Okay.**

9 Q. Well, actually, what I want to know, if you have any

10 equipment capable of doing a chemical analysis.

11 **A. No, I do not.**

12 Q. Okay. Would you know how to run a test to determine the

13 elemental composition of any particulate material?

14 **A. No. That's not the type of analysis that I'm doing.**

15 Q. Okay. And are you trained to do that analysis?

16 **A. To do the chemical analysis, no.**

17 Q. All right. I've heard the certain laboratories

18 described as Level 1 laboratories and also Level 4

19 laboratories. Are you familiar with that distinction?

20 **A. Yes, I am, sir.**

21 Q. What's the difference between a Level 1 and a Level 4

22 laboratory?

23 **A. Well, Level 1 laboratory will be doing light microscopy**

24 **to do a visual analysis through magnification of the**

25 **particles that are either on an Air-O-Cell sample or a**

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**Rocky Waters Mountain Inn, LLC v. The Travelers Indemnity Company of America**

Page 18

1     tease tape sample or bulk sample and look at it under  
2     the microscope, but there is no chemical analysis done  
3     on a Level 1 as to chemical composition of it. There  
4     isn't enhanced magnification through let's say electron  
5     microscopy. There isn't any other specific chemical  
6     analysis of -- of the different types of particles in  
7     there. So I did -- I did not do any of that.  
8     Q. Okay. Do you charge a flat fee for doing your Level 1  
9     microscopy analysis?  
10    **A. Yes. I have two separate flat fees. One is \$35 for**  
11    **both fungal and soot and char analysis, and another one,**  
12    **if they need to have a rush sample, it's \$50 a sample.**  
13    Q. Oh, for rush?  
14    **A. Yeah, for rush.**  
15    Q. Okay.  
16    **A. Yeah.**  
17    Q. Do you charge anything additional for drafting a report  
18    of what you saw?  
19    **A. No. The only additional charge I would is if -- if I**  
20    **have to -- if they would like photographs included with**  
21    **the report, I charge \$5 for photographs because it takes**  
22    **some time to put the photos in the report, but I don't**  
23    **charge for putting together a report for that analysis.**  
24    **Now, if I am asked to comment on or give interpretation**  
25    **on the report, then I charge \$150 an hour to prepare**

Page 20

1     Q. Yeah, by all means.  
2     **A. Let's see where -- there's the Days Inn. Yes, sir.**  
3     Q. All right. So Exhibit 2 is a complete copy of your  
4     report with respect to the Days Inn, correct?  
5     **A. Yes, sir.**  
6     Q. And if you could look at Exhibit 3 and let me know if  
7     that's a true and correct copy of your report with  
8     respect to the Rocky Waters Motor Inn.  
9     **A. Yes, sir.**  
10    Q. All right. Now I forget the original question that  
11    caused us to get those out.  
12    **A. Oh, we were -- I think, sir, we were trying to determine**  
13    **if I gave any more interpretation of the analysis.**  
14    Q. Correct.  
15    **A. Is that correct, sir?**  
16    Q. Yeah. Could you let me know if you did provide any  
17    additional interpretation beyond just the, you know,  
18    characterizing the results themselves?  
19    **A. I think the only other interpretation would be in the**  
20    **discussion session, and it would just give the range of**  
21    **-- of the relative concentration of the char-like and**  
22    **soot-like particles in both -- in both of those. I also**  
23    **stated that they didn't do any chemical identification.**  
24    **So essentially stating that I'm not doing a Level 4**  
25    **analysis.**

Page 19

1     that for just a straight one, nonlegal, but just a  
2     straight one.  
3     Q. Okay. In this case, did you do any interpretation of  
4     the results, or did you just provide FBS with the --  
5     with the results themselves?  
6     **A. I didn't do any extensive interpretation. About the**  
7     **only thing that would be construed as interpretation**  
8     **probably would be that I bolded some areas. Let me take**  
9     **a look at the re -- may I refer to the report, sir?**  
10    Q. Yeah. Why don't we do this.  
11    **A. Okay.**  
12    Q. I already marked color --  
13    **A. Okay.**  
14    Q. -- copies of both reports as Exhibits 2 and 3.  
15    **A. Sure.**  
16    Q. This would probably be a good time for me to hand these  
17    over to you.  
18    **A. Okay.**  
19    Q. First of all, is Exhibit 2 a true and correct copy of  
20    your report with respect to samples from the Days Inn on  
21    Hemlock Street?  
22    **A. I'll just -- if you don't mind, I'll just compare to**  
23    **what I've got --**  
24    Q. Sure.  
25    **A. -- to make sure that it's accurate.**

Page 21

1     Q. Okay.  
2     **A. I'm doing a Level 1.**  
3     Q. Are there organizations that provide accreditation to  
4     laboratories?  
5     **A. There are. I think the -- I participate in the ones**  
6     **that deal with fungal identification. I'm not -- I'm**  
7     **not cognizant of the specific one associated with the**  
8     **Level 1 analysis.**  
9     Q. All right. Is your laboratory accredited by anyone?  
10    **A. For -- for -- no, it is not.**  
11    Q. Okay. And is there any specific accreditation for  
12    laboratories analyzing fire residue?  
13    **A. I -- there may be. I'm -- I don't know.**  
14    Q. Is there any specific accreditation, to your knowledge,  
15    for laboratories analyzing fungal spores?  
16    **A. Yes, there is. The fungal spore accreditation is**  
17    **handled with the American Industrial Hygiene**  
18    **Association. They have a couple different levels of**  
19    **accreditation. They have one process that they do**  
20    **through EMPAT that has for culturable fungi. There's**  
21    **also one that they do for nonviable fungal organisms. I**  
22    **do participate in the -- in both of those through the**  
23    **University of Minnesota. Our specific lab though is not**  
24    **accredited with the -- with that organization.**  
25    Q. All right. And does that include the -- that would

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**Videotape Deposition of Neil G. Carlson - 2/28/2020**  
**Rocky Waters Mountain Inn, LLC v. The Travelers Indemnity Company of America**

Page 22

1 include your lab that you have at home and what you use  
2 at Minnesota?  
3 **A. I'm not exactly sure we're -- are you saying being not**  
4 **accredited, or what are you saying?**  
5 Q. Yeah. If I understood your testimony earlier, you said  
6 you sometimes use a microscope at the University of  
7 Minnesota, and you sometimes use one that's at your home  
8 laboratory, correct?  
9 **A. Yes. Yes.**  
10 Q. Do you know where you performed the analysis in this  
11 case?  
12 **A. I -- I do not recall. It would have been in one or the**  
13 **other. I would say, given what I'm looking at here, let**  
14 **me look at the --**  
15 Q. Sure.  
16 **A. May I look at the photos? And that would tell me. The**  
17 **photos are taken with my microscope at home. If I took**  
18 **the photos with the microscope at the university, there**  
19 **would be a grid marking.**  
20 Q. Okay. Your home lab is not accredited by -- or  
21 accredited by any organization, correct?  
22 **A. That is correct. Yes, sir.**  
23 Q. Do you have any background in the field of construction  
24 or engineering?  
25 **A. Modest background. Not in -- not with respect to**

Page 23

1 construction, but with respect to investigating  
2 buildings that have had water damage and that type of  
3 stuff, and some experience with plan review for building  
4 construction, and then in certification of buildings  
5 post construction.  
6 Q. And what is your role in -- in those instances?  
7 **A. In those instances -- and those are primarily done**  
8 **through the University of Minnesota. I will get a plan**  
9 **review and then determine if the ventilation system is**  
10 **set up appropriately for the type of occupancy in the**  
11 **building, and then will do some review about proper**  
12 **drainage systems on the -- on the building. Not -- and**  
13 **then, when they're doing remodeling for a roofing**  
14 **project, will take a look at the location of the -- of**  
15 **the asphalt device and with respect to air intakes.**  
16 For the consulting, I have done some inspections,  
17 and more recently, and that would be after these reports  
18 were done, but in a building where there's been  
19 significant fire damage. And they ask me to come in and  
20 assist with developing a sampling protocol and then  
21 analyzing the -- the samples.  
22 Q. Do you have any medical training?  
23 **A. I received training as a certified nursing assistant and**  
24 **I've taken other courses, but I don't have any degree in**  
25 **that.**

Page 24

1 Q. Okay. You've never been licensed in the medical field?  
2 **A. No, I have not been licensed.**  
3 Q. Do you have any training in toxicology?  
4 **A. Yes. I've had training in toxicology through the**  
5 **University of Minnesota with respect to the master's**  
6 **program I had. I took a course in toxicology. I also**  
7 **took some courses in -- there was a seminar that was in**  
8 **New York on microtoxins. So I've done some work on**  
9 **that. And there -- through the continuation education**  
10 **that I received here, there's probably been many other**  
11 **courses on it, but I don't recall all of them.**  
12 Q. Okay. You're not a toxicologist though?  
13 **A. That is correct.**  
14 Q. Okay.  
15 **A. I am not a toxicologist.**  
16 Q. Are your opinions in this case, are they fully expressed  
17 here in what you see as Exhibits 2 and 3?  
18 **A. As far as I know, unless you ask me a question that**  
19 **might trigger something else.**  
20 Q. Sure.  
21 **A. But as far as I know, yes.**  
22 Q. Okay. Let's talk about, first of all, your report for  
23 the Days Inn.  
24 **A. Okay.**  
25 Q. I believe we marked that as Exhibit 2, right?

Page 25

1 **A. That is correct. Yes, sir.**  
2 Q. Actually before we get into that, you -- so when you're  
3 retained by FBS, they send you -- well, how do they send  
4 you samples to analyze?  
5 **A. There's a couple different ways that they send.**  
6 **Sometimes they will personally drop it off at my -- at**  
7 **the university location and hand it to me. In other**  
8 **ways, they will ship it by mail to my residence. They**  
9 **may also have it sent by UPS or FedEx and have it placed**  
10 **in a box by my door.**  
11 Q. Do you know how the samples in this case were delivered  
12 to you?  
13 **A. I don't recall, sir.**  
14 Q. Okay. Suffice to say though, at some point you received  
15 some samples from FBS with respect to the Days Inn and  
16 the Rocky Waters Motor Inn, correct?  
17 **A. Yes. That's correct, yeah.**  
18 Q. And I assume you're -- the only basis you had for  
19 knowing that they came from Days Inn and Rocky Waters  
20 Motor Inn was information you got from FBS, correct?  
21 **A. That is correct, sir, yes.**  
22 Q. Have you -- have you ever been to either of those  
23 properties?  
24 **A. I have not been to those properties, sir.**  
25 Q. Okay. And by the way, in this case, have you -- have

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**Videotape Deposition of Neil G. Carlson - 2/28/2020**  
**Rocky Waters Mountain Inn, LLC v. The Travelers Indemnity Company of America**

Page 26

1 you reviewed any -- any estimates related to the  
2 insurance claim?  
3 **A. I want to think for a second to make sure. I don't**  
4 **recall seeing any estimates on this one, and, if**  
5 **something comes to light later, that would be just**  
6 **because of faulty memory, but I don't recall.**  
7 Q. Have you reviewed any other expert reports in this case?  
8 **A. I did review one, two sets of other expert reports with**  
9 **respect to both the Rocky Waters Motor Inn and the Days**  
10 **Inn.**  
11 Q. And what reports were those?  
12 **A. That was a Level 4 analysis, and I don't recall the name**  
13 **of the company. That was done on both properties.**  
14 Q. Okay. Was it Enrique Medina Alliance Consulting?  
15 **A. I -- I -- I think that's probably it. I don't recall**  
16 **the name, but I think so.**  
17 Q. Okay.  
18 **A. Is it a company based out of California?**  
19 Q. Yes, sir.  
20 **A. Okay. Then I believe that would be it.**  
21 Q. Okay. Beyond -- beyond the fact that they did a Level 4  
22 analysis, as you sit here today, do you have any  
23 specific recollection of Mr. Medina's or Alliance  
24 Consulting's findings?  
25 **A. Other than the fact that it was a Level 4 and that they**

Page 28

1 have a location where I can do my write-up on the  
2 report, and then a disposal spot for the materials when  
3 I'm finished.  
4 Q. Okay. I asked a little bit earlier about accreditation  
5 for laboratories.  
6 **A. Yes.**  
7 Q. Is there any licensing or accreditation that is given  
8 out to individuals like yourself?  
9 **A. I am not aware of that. Or I'm -- now let's clarify**  
10 **your question. Is that with respect to analysis of char**  
11 **and soot? Is that what you're asking, or...**  
12 Q. Well, let's start there. With respect to analysis of  
13 char and soot, is there any accreditation that's given  
14 out to individuals?  
15 **A. I do not know if there is. If there is, I'm not aware**  
16 **of it.**  
17 Q. How about with respect to analysis of fungal samples?  
18 **A. Well, the accreditation that I talked to, referred to**  
19 **previously with respect to the American Industrial**  
20 **Hygiene Association, and EMPAT does have accreditation.**  
21 Q. Okay. And earlier I asked if your laboratory was  
22 accredited. Let me ask the same question. Are you  
23 personally accredited by any organizations or licensed  
24 by any organizations?  
25 **A. I'm not accredited for any specific analysis. I do have**

Page 27

1 found, or they found -- at least reading through it,  
2 based on their report, they found char and soot  
3 particles and that there was a suggestion about using  
4 that analysis to determine possible origin of the fire.  
5 Q. Okay. Beyond that, do you have any recollection or  
6 opinions about the report?  
7 **A. Not that I can recall right now. But if there's another**  
8 **question that comes up that triggers it, I will respond.**  
9 Q. Certainly. Okay. All right. So, once you receive a  
10 sample from FBS, what do you do with it?  
11 **A. Well, the first thing I do is take it into my lab area,**  
12 **and then I will sign off on the -- the chain of custody.**  
13 **So I'll -- I think I probably got a copy of it for each**  
14 **one. But I'll sign and date when I receive the sample,**  
15 **and then -- then I'll sign and then I will date it when**  
16 **I did the analysis.**  
17 Q. Where -- where is your lab located in your home?  
18 **A. It is in -- I got to get the directions right. It is in**  
19 **the southwest corner of my house.**  
20 Q. First floor or basement?  
21 **A. It's -- it's a split level. So it would be first floor.**  
22 Q. Okay. Is it an isolated room?  
23 **A. It's an isolated room. I have a microscope set up with**  
24 **my Sharps boxes on one side and then tease tape,**  
25 **mounting fluid equipment on the other side. And then I**

Page 29

1 a certified industrial hygienist, but that's not an  
2 accreditation. Is that clear --  
3 Q. Yeah.  
4 **A. -- for you?**  
5 Q. That's clear. Okay. So once you -- explain to me the  
6 process of getting the samples out of their container  
7 and onto a -- onto a slide, a microscope.  
8 **A. Sure. The samples would typically be in a -- in a box**  
9 **or a plastic Ziploc bag. I don't recall specifically**  
10 **with respect to these samples. I'd take the sample out,**  
11 **and it depends on -- if it's okay, I'm going to look and**  
12 **see if, you know --**  
13 Q. Sure.  
14 **A. -- what type we've got. So these, in the -- right now**  
15 **we're referring to Days Inn, correct?**  
16 Q. Well, my question is more general.  
17 **A. Okay. So for an Air-O-Cell cassette, I would write down**  
18 **the information that's presented on the Air-O-Cell**  
19 **cassette and place it on a lab report form. And, for**  
20 **instance, sample 1, and then all the information I can.**  
21 **Do a line below that and then take the -- there's an**  
22 **inside -- open up the Air-O-Cell cassette, and inside**  
23 **there there is a -- let's say a slide with a gel that's**  
24 **on one side, and no gel on the other. I'll place that**  
25 **on top of a microscope cover, microscope slide, and then**

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**Videotape Deposition of Neil G. Carlson - 2/28/2020**  
**Rocky Waters Mountain Inn, LLC v. The Travelers Indemnity Company of America**

Page 30

1 place mounting fluid on a clear coverslip, and then  
2 place that directly on top of the -- of that material,  
3 and then take that directly onto a microscope stage and  
4 then visually look through the field. And then for  
5 soot-like and char-like particles, then and also look  
6 for fungal particles. And in some case, with respect to  
7 the Air-O-Cell cassette, make some sort of determination  
8 with respect to the density of the trace and then mark  
9 that information down in the lab note here. Once I'm  
10 done with that, then I will dispose of that in a Sharps  
11 container.

12 Q. Okay. Where does your training or expertise in terms of  
13 how to visually differentiate between char and soot come  
14 from?

15 A. When we first began, Tom Irmiter approached me and he  
16 asked me if I could do this analysis. And I said I am  
17 not familiar with it, and so we talked about ways of  
18 getting me familiar with it. So he purchased a large  
19 collection of different styles of wood. And so I took  
20 the wood into the laboratory, and at this time it was a  
21 laboratory that was over at Boynton Health Service, and  
22 we moved positions. And then I burned each different  
23 kind of wood and then took an Air-O-Cell cassette  
24 analysis or Air-O-Cell cassette sample close to the  
25 piece of wood. And then I looked at the resulting char

Page 31

1 from the different styles of wood. So that gave me some  
2 comfort level with respect to the variety of char styles  
3 I may anticipate seeing. So, after seeing a large  
4 number of them, I was able to -- to be comfortable with  
5 that analysis. Then, with respect to soot analysis, I  
6 burned some other material, primarily material that  
7 produced a little bit better soot particle. The wood,  
8 with the high temperature of burner, primarily produced  
9 more char than soot. And then we also had some  
10 electrical fires on campus that produced a large amount  
11 of soot particles. And there's a YouTube video out  
12 there that shows me taking a sample of that. Then I  
13 looked at the soot particles generated by that. And  
14 then also did online references. And I don't have the  
15 specific ones for you, but looking at here's how soot  
16 particles present and how they compare to some other  
17 particles that are somewhat similar.

18 Q. Have you ever received any training from any third  
19 parties as to how to visually differentiate between soot  
20 and char particles?

21 A. Not the -- not -- no -- no in-person third-party  
22 training. No.

23 Q. Okay. How does the appearance of char and soot  
24 particles differ under a microscope?

25 A. The char particle will typically be larger. It will be

Page 32

1 very plainer. It will have defined edges. Sometimes  
2 the char particle will have open circles in several  
3 spots due to the type of burn it's had. They may be a  
4 black and opaque with sharp edges, or they may be sort  
5 of amber colored, but, in general, they're fairly --  
6 they're kind of -- I would call it sheets or very thin  
7 sheets with much larger width and length than -- than  
8 depth. Very thin.

9 The soot particles are typically less than one  
10 micron in size. They'll be a spherical. They tend to  
11 agglomerate into what look like small grapelike  
12 clusters. The edges are irregular. They're -- they are  
13 less opaque or less dark than the char particles and  
14 they'll have uneven edges. And they'll -- it's very  
15 difficult with the light microscopy -- microscopy to  
16 pick out one, but it can be pick out clusters. So  
17 that's why it's more of a presumptive method of doing --  
18 you need electron microscopy to pick up something  
19 because it's outside the optical limit of the light  
20 microscopy.

21 Q. Okay. And the light microscopy goes -- on yours, goes  
22 up to only 60 times, right?

23 A. That's as high as I choose to look at -- at the  
24 particular samples I look at, yes.

25 Q. Okay. In terms of your lab analysis, do you -- do you

Page 33

1 analyze the Air-O-Cell cassette samples any differently  
2 than tape samples?

3 A. With respect to counts, it's slightly different. So the  
4 Air-O-Cell cassette samples, typically there are -- at  
5 400x, there's typically approximately 25 fields from one  
6 end of the trace to the other. So, with respect to the  
7 number that's listed after like char or soot, that is  
8 the average number of that type of particles in that  
9 field. So, for instance, if I'll go along in -- in this  
10 section, and it depends on how many that are there, if  
11 it's a small number, then I will actually count the  
12 whole number of that type of particles from one end to  
13 the other and divide that number by 25 to get -- to get  
14 the number that's associated with this.

15 So, in other words, if I find 25 particles of char  
16 all the way through that whole trace, then the answer  
17 would be one, because there's one particle per field.  
18 Let's see here.

19 Q. So just so I have that clear then, so like if we look at  
20 the report that's marked as Exhibit 2 as an example --

21 A. Right.

22 Q. -- we have sample number 9, Room 412, dividing CMU. Do  
23 you see that?

24 A. Yes.

25 Q. And it says, char 1 to 2. Do you see that?

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**Videotape Deposition of Neil G. Carlson - 2/28/2020**  
**Rocky Waters Mountain Inn, LLC v. The Travelers Indemnity Company of America**

Page 34

1     **A. Yes.**  
2     Q. Does that mean that's 1 to 2 particles per field that  
3     you observed?  
4     **A. That's correct, yes.**  
5     Q. And what is the size of that field?  
6     **A. The size of the field is the size of the field**  
7     **circumscribed by the 400x. I can give you a rough**  
8     **estimate of the size. It's approximately -- well, I**  
9     **would have to -- I'd have to measure it out with a**  
10    **micrometer. It's approximately -- do my diameters**  
11    **right. I think it's -- I'm going to give you**  
12    **approximate range between 150 and 200 micrometers in**  
13    **diameter.**  
14    Q. Okay. And how about in terms -- my -- my math is not as  
15    good as yours. Can you express that in square  
16    millimeters?  
17    **A. Well, let's see. I'd have to take it times pi.**  
18    Q. Okay.  
19    **A. Let's say I can do the radius. Let's say the radius is**  
20    **roughly 100. It's not a very big one as far as**  
21    **millimeters. It's micrometers. So do you really need**  
22    **it? I mean we can...**  
23    Q. No, I don't need an exact answer.  
24    **A. Okay.**  
25    Q. And if you don't have a reasonable approximation,

Page 36

1     that more or less than 1 square millimeter field?  
2     **A. It would be less.**  
3     Q. Okay. Looking at Exhibit 2, my understanding is that  
4     the notation Asp/Pen heavy, that's a reference to mold  
5     spores, correct?  
6     **A. Yes. It's -- It's a reference to Asp/Pen mold spores.**  
7     **The reason why it's designated Asp/Pen is the spores are**  
8     **similar to those produced by an aspergillus or**  
9     **penicillium organism, but using this technique with the**  
10    **tape, it's unable to differentiate between the two.**  
11    **That's why it's referred to Asp/Pen.**  
12    Q. Unable to differentiate between the aspergillus and  
13    penicillium?  
14    **A. That is correct. Yes, sir.**  
15    Q. All right. So you've -- in Room 407, interior wall, the  
16    first sample that you analyze here on Exhibit 2, this is  
17    a Days Inn, you noted that Asp/Pen was heavy, correct?  
18    **A. Yes.**  
19    Q. Do you know how many particles per field there were?  
20    **A. That one I don't typically measure in particles per**  
21    **field. If I -- if I may refer to the interpretation on**  
22    **-- let's see if I've got one in this one. This one**  
23    **actually -- okay. I usually have a fungal**  
24    **interpretation. This one I don't. The typical fungal**  
25    **interpretation is if I see fungal growth, so actual**

Page 35

1     there's no need to stop and figure it out.  
2     **A. Yeah.**  
3     Q. But is it -- after you've looked -- strike that.  
4     Excuse me. For the record, I just had to stop and  
5     take a drink of water.  
6     When you're analyzing the tape samples or the  
7     Air-O-Cell samples, do you look at the entire field?  
8     **A. As much as I can. In some cases, for instance, if I may**  
9     **refer to this, I think there's one. For instance, there**  
10    **was a tease tape sample that had char of 50 plus. I**  
11    **would look probably at the field, kind of zoom in a**  
12    **couple spots, but, if it's essentially opaque, I'm not**  
13    **going to go into every one that looks like there's a lot**  
14    **of problems. If there's a really low count, then I'm**  
15    **going to have to go through the whole field to make sure**  
16    **I'm -- because I'm looking for a needle in a haystack**  
17    **essentially.**  
18    Q. Okay. So, in terms of the field size that this is, we  
19    use number 9 as an example, char 1 to 2 particles,  
20    correct?  
21    **A. Yeah.**  
22    Q. And that's expressed as 1 or 2 particles per field that  
23    you're viewing under the microscope, correct?  
24    **A. Yeah. Yeah.**  
25    Q. And I don't -- I don't need an exact figure. But is

Page 37

1     **growth of a -- of organisms or a large number of fungal**  
2     **spores. But in this particular case the primarily --**  
3     **primary analysis is focused on the soot and char; not so**  
4     **much in that. If I'm doing a specific fungal analysis,**  
5     **then I'll give you actual spores per cubic meter, but I**  
6     **didn't do that in this case.**  
7     Q. Okay. As you sit here today, we have no idea what the  
8     spores per cubic millimeter of mold spores was, correct?  
9     **A. No, I don't have a specific one.**  
10    Q. Okay.  
11    **A. In that it's based on past experience, it looked like**  
12    **there was a significant number that -- and when I do**  
13    **that, it just -- when I make this notation, it's just**  
14    **suggesting that when the person is looking at the spot**  
15    **that there may be an internal source for that organism**  
16    **in that space. And typically they'll follow up and try**  
17    **to figure out where that is or what's -- what's the**  
18    **problem.**  
19    Q. Okay. So on the sample number 1, Room 407, interior  
20    wall, what was the proportion of mold spores that you  
21    observed to char and soot particles?  
22    **A. I won't give you a -- I can't give you an exact one, but**  
23    **I would say -- let's see. If I'm looking at maybe a**  
24    **1,000 to 1 or something or more.**  
25    Q. So like 1,000 -- 1,000 units of the mold spores to 1

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**Videotape Deposition of Neil G. Carlson - 2/28/2020**  
**Rocky Waters Mountain Inn, LLC v. The Travelers Indemnity Company of America**

Page 38

1 unit of the char and soot?

2 A. Yeah. Since the char and soot are negligible there.

3 Q. Okay.

4 A. There's not very many. So it would be primarily those.

5 And I'm ball-parking it with respect to 1,000.

6 Q. Sure. You've got Asp/Pen noted at moderate to light

7 down here on sample 10. Can you tell me what range of

8 spores is moderate to light?

9 A. I would -- and I'm -- again, I'm going to give you a

10 ballpark, but I would say somewhere between 10 and maybe

11 75, or something like that.

12 Q. All right.

13 A. Per -- for that whole trace.

14 Q. And that's particles per field, right?

15 A. No. That would be if you're looking at that more of

16 particles per -- per cubic meter.

17 Q. Okay.

18 A. And in these samples there are 30-liter samples. So...

19 Q. Do you have any opinion on whether air samples or

20 surface samples are more reliable?

21 A. I'll say in some cases it depends. It's easier to get

22 recovery from a surface sample than it is from an air

23 sample because the air samples tend to be variable and

24 are affected a lot more by let's say a disturbance in

25 the environment, and there's a lot more variables. So

Page 39

1 I've taken samples in, let's say, a half hour apart, and

2 it's been very different. So there's a lot of

3 variability associated with the air samples. With a

4 surface sample, it tends to be less variable.

5 Q. Okay. Is that because a surface sample has to be

6 disturbed more to -- to move?

7 A. I would say, yes, or it's settled there and it hasn't --

8 you know, I'm not -- I'm not relying on the aerodynamics

9 of the particles to move around or mechanical force to

10 move it.

11 Q. Okay. So there's a column on here in Exhibit 2 titled

12 Trace Density. Do you see that?

13 A. Yes.

14 Q. Where do the terms moderate or light to moderate or

15 heavy come from? Are those from some independent

16 source, or are those your characterizations?

17 A. They're my characterizations. I've seen them on other

18 reports. And essentially it helps. At least my

19 intention is to help the person that I'm sending the

20 sample, saying that -- that there's a -- and it's kind

21 of a -- it's on a relative scale, but are -- are the

22 particles very dense or are they not too numerous. So,

23 in other words, it would be I can give you a ballpark,

24 and it may be less than 10 particles per field on a

25 rough basis would be considered light. I mean I'm

Page 40

1 looking through and I can see fairly clearly. For a

2 heavy one I would see almost a matte of particles, and

3 that would make it more difficult for me to see, to

4 determine the particles that are -- are -- are present

5 and do an identification on.

6 Q. Okay. Let's move. Just past that table there's a Char

7 and soot-like particle interpretation section there. Do

8 you see that?

9 A. Yes.

10 Q. Where does that table come from?

11 A. That one was -- and I can't -- I don't recall the exact

12 place it was from. I think Tom Irmeter may be able to

13 help you answer that question.

14 Q. Okay. So, as you sit here today, you don't know where

15 this table came from?

16 A. I don't remember. I don't recall exactly where it came

17 from, but I recall somehow looking through some other

18 reports and finding that this seemed to be more or less

19 a way that people were looking at it. It is similar to

20 what -- as far as interpretation, I don't think it's

21 there, but the EMLab P&K seminar on it did have

22 subrogations based on that that were fairly similar to

23 this. So I would say that would probably be close to.

24 Q. That kind of brings me to my next question. Is there a

25 generally accepted particle count that constitutes, you

Page 41

1 know, negligible, limited, moderate, or significant, or

2 major?

3 A. I think there's general agreement on the major part of

4 it. In other words, if they're -- the way that this is

5 typically interpreted and is primarily tease tape

6 samples slightly modified for the Air-O-Cell sample.

7 But for a tease tape sample, if about 50 percent of the

8 particles you observe in a field are of one type, that

9 would be considered a major impact. And if you can't --

10 then on the other end it's negligible if you can only

11 find less than 1 particle. That would be considered

12 negligible. In between there I think there's probably

13 some room for interpretation.

14 Q. Okay. Is there any publication you can point me to that

15 establishes any sort of standard for how these particle

16 counts are characterized?

17 A. There may be some, but I can't off the top of my head.

18 Q. Okay.

19 A. No.

20 Q. So like if you look at the trace density of sample 1 in

21 Room 407, it's described as moderate, correct?

22 A. Yes. Yep.

23 Q. And the primary particles, you observed char less than

24 1; soot less than 1, correct?

25 A. Yes.

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**Videotape Deposition of Neil G. Carlson - 2/28/2020**  
**Rocky Waters Mountain Inn, LLC v. The Travelers Indemnity Company of America**

Page 42

1 Q. And if we go to char and soot-like particle  
2 interpretation, moderate is 2 to 10 particles per field,  
3 correct?  
4 **A. No. The -- you're looking at the trace density? Or**  
5 **where are you?**  
6 Q. Yes.  
7 **A. Okay. You're looking at -- sorry.**  
8 Q. That's okay.  
9 **A. The moderate, the trace density has nothing to do with**  
10 **that interpretation.**  
11 Q. Okay. And why not?  
12 **A. It just has to do with the total number of particles**  
13 **that are in there, but not the -- the number, if you're**  
14 **going to interpret it, that would be the number after**  
15 **the char. So look at the number after the char. It's**  
16 **less than 1. And then, if you look at the -- that would**  
17 **be particles per field. Does that make sense to you?**  
18 **So it would be under the limited impact of smoke.**  
19 Q. Okay. All right. So 1 would be --  
20 **A. Less than 1 would be.**  
21 Q. -- limited?  
22 **A. Yeah.**  
23 Q. Correct?  
24 **A. Yep.**  
25 Q. All right. 4 would be limited to moderate, correct?

Page 44

1 **A. Yes.**  
2 Q. Sample 12 for char would be significant impact, correct,  
3 for char?  
4 **A. Yes.**  
5 Q. Okay. And it would be negligible for soot, correct?  
6 **A. Yes.**  
7 Q. Sample 13 would be moderate impact for char and  
8 negligible for soot, correct?  
9 **A. Yes.**  
10 Q. Okay. Samples 14 and 16 would be negligible for both  
11 char and soot, correct?  
12 **A. Yes.**  
13 Q. Sample 17 would be limited for char, correct?  
14 **A. Yes.**  
15 Q. Negligible for soot, right?  
16 **A. Yes.**  
17 Q. Sample 19 would be limited for char, correct?  
18 **A. Yes.**  
19 Q. And negligible for soot?  
20 **A. Yes.**  
21 Q. And sample 20 would be limited for char and negligible  
22 for soot, correct?  
23 **A. Yes.**  
24 Q. Okay.  
25 **A. And did you want to do 19, or not?**

Page 43

1 **A. Yeah. 4 would be like moderate, yeah.**  
2 Q. For char at least?  
3 **A. Yeah.**  
4 Q. Correct?  
5 **A. Yeah.**  
6 Q. Sample 6 would be limited, correct?  
7 **A. Yep.**  
8 Q. Okay. Sample 9 would be limited as well, correct?  
9 **A. That's correct, yes.**  
10 Q. As to char?  
11 **A. Yep.**  
12 Q. And back to sample 1. Soot would be negligible,  
13 correct? Or limited?  
14 **A. Limited, yep. Yep.**  
15 Q. 4 would be negligible, correct, for soot?  
16 **A. Yeah. That be would be negligible. Yep.**  
17 Q. All right. 6 would be limited for soot -- or negligible  
18 to limited for soot, right?  
19 **A. Negligible for soot, yeah.**  
20 Q. Okay. So 9 would be negligible for soot, correct?  
21 **A. That's correct. Yes.**  
22 Q. Sample 9 would be limited impact for char, correct?  
23 **A. Yes.**  
24 Q. And then sample 10 would be negligible impact for both  
25 char and soot, correct?

Page 45

1 Q. Did I skip 19?  
2 **A. Yes.**  
3 Q. Ah. 19 would be limited to moderate for char and  
4 negligible for soot, correct?  
5 **A. Yes.**  
6 Q. All right. Did you have any role in determining where  
7 these samples were taken from?  
8 **A. No, I did not.**  
9 Q. Is there a typical number of samples that you receive  
10 when you're doing work with FBS?  
11 **A. No. It's highly variable. It depends on how many**  
12 **samples that they -- in their professional opinion**  
13 **determine they need to set up the scope. And I assume**  
14 **there's also a budget involved as far as how many**  
15 **samples that they're allowed to take.**  
16 Q. Are you aware of any established standard or protocol  
17 governing the number of samples that must be taken per  
18 square foot or cubic foot of a building?  
19 **A. I am not personally aware of that.**  
20 Q. Okay. So, if we move down here to the tape samples on  
21 Exhibit 2, you see there's one Room 407 wood burning  
22 fireplace tape lift. Do you see that?  
23 **A. Yes.**  
24 Q. And it looks like you've identified quite a bit of char  
25 in that sample, correct?

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**Videotape Deposition of Neil G. Carlson - 2/28/2020**  
**Rocky Waters Mountain Inn, LLC v. The Travelers Indemnity Company of America**

Page 46

1    **A. Yes.**  
2    Q. And that's 50 plus particles of char, right?  
3    **A. Yes.**  
4    Q. But no soot, correct?  
5    **A. Yes.**  
6    Q. Okay. Is there a typical proportion of char to soot  
7    that you see in wildfire residue?  
8    **A. I would not be qualified to answer that question.**  
9    Q. Okay. Would you be qualified to -- well, let me ask a  
10   similar question. Is there a typical proportion of char  
11   to soot that you would expect to see just from use of a  
12   wood burning fireplace?  
13   **A. I'm not -- I don't know.**  
14   Q. Okay. Do you consider yourself qualified to even answer  
15   the question?  
16   **A. With respect to knowledge about the proportion of char**  
17   **and soot emanating from a fireplace, I'm not qualified**  
18   **to answer that question.**  
19   Q. Okay. Do you expect to see more char or soot in a  
20   wildfire?  
21       MR. SCOTT: Object to the form.  
22   Q. (MR. DEVILLING) That was a poor question.  
23       Do you know if -- if you would expect to see a  
24   higher level of char or a higher level of soot in a  
25   wildfire?

Page 47

1    **A. I'm not qualified to answer that.**  
2       MR. SCOTT: Object to the form.  
3    **A. Sorry.**  
4    Q. (MR. DEVILLING) Let's look at Exhibit 3.  
5    **A. Okay. That is the Rocky Waters Motors Inn?**  
6    Q. Correct.  
7    **A. Okay.**  
8    Q. And Exhibit 3 is a true and correct copy of your report  
9    with respect to your analysis for the Rocky Waters Motor  
10   Inn, correct?  
11   **A. Yes.**  
12   Q. Okay. And it's got the same char and soot-like particle  
13   interpretation table, correct?  
14   **A. Yes.**  
15   Q. Okay. So is trace density, in that column, is that  
16   basically like your impression just looking at the  
17   density through the microscope?  
18   **A. Yes. It's looking at the total number of particles,**  
19   **irrespective to type.**  
20   Q. Ah, okay.  
21   **A. Does that help?**  
22   Q. Yes. Okay. So, for example, sample number 4,  
23   Room 105, bathroom, dropped ceiling, it says trace  
24   density very heavy. That just means it's a very heavy  
25   concentration of lots of different types of particles?

Page 48

1    **A. Yes.**  
2    Q. All right. And do you know what types of particles  
3    those might be?  
4    **A. I don't recall. I'll see -- if it's okay for you, I'll**  
5    **see if I have the photo from that.**  
6    Q. Sure.  
7    **A. It might help. I do not have the photo from that; so I**  
8    **would not know.**  
9    Q. In analyzing samples like this under a microscope, are  
10   you typically seeing more particles than just the char  
11   and the soot?  
12   **A. Yes.**  
13   Q. For example, there could be -- there could be like  
14   residual dead skin, correct?  
15   **A. Yes.**  
16   Q. Could be dead insects in there, correct?  
17   **A. Yes.**  
18   Q. All right. Could be burnt clays, right?  
19   **A. There could be; although, I -- I don't do analysis for**  
20   **that. So...**  
21   Q. Okay. Suffice to say, there's lots of other types of  
22   residue in -- in a tape sample that you're looking at,  
23   correct?  
24   **A. Yes.**  
25   Q. And what you're doing is just trying to identify the

Page 49

1    char and the soot within all those other types for your  
2   analysis?  
3   **A. The char-like and soot-like particles.**  
4   Q. Okay.  
5   **A. Yes.**  
6   Q. Okay. If we look at this report here, Exhibit Number 3,  
7   let's go to the -- let's take sample number 2 and sample  
8   number 4 as an example. So, when you're looking at  
9   sample number 2 and describing the trace density as  
10   light, can you give me an estimate of the number of  
11   particles per field that you're talking about there?  
12   **A. It would be a range probably less than 5 particles per**  
13   **field. It's very easy to see through. There isn't a**  
14   **lot of obstruction.**  
15   Q. Okay. And then we've got number 4. Trace density is  
16   described as very heavy. Can you tell me about how many  
17   particles per field very heavy would be?  
18   **A. There would be thousands of particles per field.**  
19   Q. Okay.  
20   **A. It would be essentially like looking like this.**  
21   Q. Okay. So, when we see under number 4, 8 to 10 char  
22   particles per field, that says nothing about what the  
23   percentage of char is with respect to all of the other  
24   substances that are on that tape, correct?  
25   **A. Yes. That would be correct.**

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**Videotape Deposition of Neil G. Carlson - 2/28/2020**  
**Rocky Waters Mountain Inn, LLC v. The Travelers Indemnity Company of America**

Page 50

1 Q. Okay.

2 **A. The char particles would typically be the darker**

3 **particles, and there would be lighter colored particles**

4 **that I wouldn't know. And in that case the soot**

5 **particles would be extremely hard to see because they're**

6 **smaller, and they would be covered up by everything**

7 **else.**

8 Q. Understood. Okay. If you go to the tape samples, it

9 looks like sample 1 and sample 12 are both fireplace

10 samples, correct?

11 **A. Yes.**

12 Q. And number 1 you found char particles 20 to 30, and soot

13 50 plus, correct?

14 **A. Yes.**

15 Q. And then sample 12, you have char participate 10 to 20

16 and soot 50 plus, correct?

17 **A. Yes.**

18 Q. If you compare that to the fireplace sample that was

19 taken from the Days Inn, that would be sample number 2.

20 Do you have that?

21 **A. Yes. I have both of them. That would be sample number**

22 **2 from the -- let me make sure I've got the exhibit**

23 **right.**

24 Q. Exhibit 2.

25 **A. Yes. That's correct, yeah.**

Page 51

1 Q. So, comparing sample 2 from the Days Inn from sample 1

2 from Rocky Waters Motor Inn, there are a few differences

3 there, correct?

4 **A. Yes.**

5 Q. All right. For one thing, there's soot at Rocky Waters

6 Motor Inn, but no soot over at the Days Inn, correct?

7 **A. Yes.**

8 Q. Can you explain --

9 MR. SCOTT: Object to the form.

10 MR. DEVILLING: Yeah. Let me restate that

11 question.

12 Q. (MR. DEVILLING) so, for one thing, there's soot shown

13 in sample number 1 from the Rocky Waters Motor Inn, but

14 no soot shown in sample number 2 from the Days Inn,

15 correct?

16 **A. Yes.**

17 Q. All right. Can you explain why there is 50 plus level

18 of soot in sample number 1, but no soot in sample number

19 2?

20 **A. It would require me to speculate.**

21 Q. Okay. And can you tell me why there's a difference in

22 the proportion of char to soot in -- as between sample

23 number 1 and sample number 2?

24 **A. Again, it would require me to speculate.**

25 Q. Okay. What are there -- what potential reasons could

Page 52

1 there be for presence of 50 plus soot particles in one

2 wood burning fireplace and no soot particles in another

3 wood burning fireplace?

4 **A. Well, there may be --**

5 MR. SCOTT: Object to the form. I think

6 he's already testified that he's not qualified, but you

7 can answer.

8 THE WITNESS: Yeah.

9 Q. (MR. DEVILLING) If you know,

10 **A. It would be generally a different combustion**

11 **temperature, or it may be a different sampling location.**

12 Q. Okay.

13 **A. So there may be some char over here. May be some soot**

14 **over here, and you're sampling with a tease tape, trying**

15 **to represent an area. So...**

16 Q. Okay. And, again, I'm just asking you what some

17 possibilities might be.

18 **A. Yeah.**

19 Q. And not...

20 **A. Yeah.**

21 Q. I understand that's not -- not something that you know

22 for certain, correct?

23 **A. That is correct. Yes.**

24 Q. Okay. If you go back to the char and soot-like particle

25 interpretation on here, you see it's listed at 400x,

Page 53

1 correct?

2 **A. The -- that's -- yeah. That's the magnification.**

3 Q. Okay. Now, if we go to your comments after the tables,

4 right now I'm looking at the Rocky Waters Motor Inn

5 Report. That's Exhibit 3.

6 **A. Yes. And are -- a question. You're referring to the**

7 **discussion section?**

8 Q. Well, I want to talk about methods first.

9 **A. Okay. Yes.**

10 Q. It says the Air-O cassette traces were identified under

11 light microscopy viewed at 100x, 200x and 400x, correct?

12 **A. Yes.**

13 Q. I thought you said your microscope only went to 60x.

14 **A. No. 600. It's -- the 60x is the magnification.**

15 **There's a 10. Good question. There's a 10x, 10x up**

16 **here and 60 down here.**

17 Q. Ah.

18 **A. And that goes --**

19 Q. Okay.

20 **A. So thank you for clarifying that.**

21 Q. Thank you for clarifying.

22 **A. Yes.**

23 Q. That's what I was --

24 **A. I couldn't see very much if it was only 60.**

25 Q. Yeah. Okay. So you've got -- you've got one lens up

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**Videotape Deposition of Neil G. Carlson - 2/28/2020**  
**Rocky Waters Mountain Inn, LLC v. The Travelers Indemnity Company of America**

Page 54

1 top that's 10 and the other, that's 60. At the bottom,  
2 you put it together, you get 600, correct?  
3 **A. That's correct. Yes.**  
4 Q. Okay. Thank you. And then to change the magnification,  
5 you just change out the lens at the top, correct?  
6 **A. You change out the lens at the bottom.**  
7 Q. Ah, okay.  
8 **A. 10 always stays up at the top, and then you change the**  
9 **ones at the bottom.**  
10 Q. Okay. My mind's still stuck in the microscope I used in  
11 fifth grade I think.  
12 It says Lacto fuchsin stain in 85 percent lactic  
13 acid was used to aid in identification. Can you explain  
14 what that means?  
15 **A. Sure. Lacto fuchsin is a stain I use primarily for**  
16 **fungal organisms. Although, it does help separate out**  
17 **some of the soot and char particles and make them a**  
18 **little more easier to observe under the microscope.**  
19 Q. Okay.  
20 **A. It gives it a slight reddish tint to the background.**  
21 Q. Okay. And back to this, you said you viewed it at three  
22 different magnifications; 100x, 200x and 400x. When  
23 you're doing the particle counts above in the table, are  
24 those particle counts based on the view at 100, 200 or  
25 400?

Page 55

1 **A. The particle counts are based at 400.**  
2 Q. Okay. And when you're -- when you're at a 100x and  
3 you're looking down at the -- the field through the  
4 microscope, do you make a decision as to what part of  
5 that field you want to zoom in on next?  
6 **A. Yes. I typically will do a full scan. For instance, at**  
7 **100x or 200x to kind of find out what -- what particles**  
8 **appear to be interesting and then will zoom down on some**  
9 **that I'm -- I'm trying to figure out if they're soot or**  
10 **char, and then I can zoom back and then start doing the**  
11 **counting, but I just want to see if there's -- for**  
12 **instance, on the ones that are really light, I'll just**  
13 **go through and say I don't see much here at all. I've**  
14 **got to zoom in and see if I can find one or two or**  
15 **something like that.**  
16 Q. Mm-hmm. Do you typically zoom in to areas that are more  
17 dense?  
18 **A. Yeah. At least on the initial scan, just to find out**  
19 **what type, what's going on there, what does it look**  
20 **like. Is it -- for instance, from afar, from a**  
21 **distance, in other words, so, if I'm looking at 100x,**  
22 **it's difficult for me to discern whether the dark**  
23 **cluster would be maybe a cluster of fungal particles or**  
24 **char particles, and as I zoom in, then I'll be able to**  
25 **sort that out.**

Page 56

1 Q. Okay. But when you make a decision as to which area of  
2 the field in the microscope to zoom in on, are you  
3 typically then choosing to zoom in on a denser area?  
4 **A. I'll look at all of the areas. So that -- so that's**  
5 **what you'll see in some cases where you'll see a range,**  
6 **because the number of particles, particularly more so on**  
7 **the tease tape samples aren't evenly distributed. So**  
8 **there will be some areas where it's really dense and**  
9 **some others that aren't. And that's what kind of puts a**  
10 **variability in -- in that number. You'll see like 20 to**  
11 **30 because some areas are more dense than others.**  
12 Q. Okay. You testified -- I think you testified earlier  
13 that you -- you will look at the entire tape area under  
14 the microscope during your analysis, correct?  
15 **A. As much as I can, and in some cases, if it's fairly**  
16 **obvious that we've got a problem, I'm not going to look**  
17 **at everything. And in some cases, as I do a scan, it**  
18 **seems to be fairly uniform, then I will focus on a small**  
19 **area. And that's particularly with a tape sample where**  
20 **it's a huge area to look at. So I'll focus in on a**  
21 **couple of them that seem to be more representative than**  
22 **-- than the whole piece. With respect to the**  
23 **Air-O-Cell, I will look at the whole trace.**  
24 Q. Can you tell me what -- what percentage of the area of  
25 the tape sample you end up viewing at 400 times

Page 57

1 magnification?  
2 **A. It really varies. Sometimes it would be 5 to 10**  
3 **percent. Other times maybe 40 or 50. It depends. And**  
4 **then also sometimes the tape that they give me will**  
5 **either be really wide or narrow. And if it's a really**  
6 **wide tape, then the percentage would be down because it**  
7 **will be covering some areas. In other areas I won't**  
8 **look at terribly closely if there's a lot of debris that**  
9 **makes it impossible to see through. So I'm looking for**  
10 **something that looks -- for instance, I'll see some dark**  
11 **shadows in there, but I can't tell what they are. Then**  
12 **I'll move over to a spot that's a little clearer, and I**  
13 **can clarify whether -- what I'm seeing.**  
14 Q. Do you know what kind of tape FBS uses to collect their  
15 samples?  
16 **A. I -- it appears to be Scotch 3M 600. It's the red**  
17 **tartan tape. It's the clear tape.**  
18 Q. Okay.  
19 **A. That's the one I've told them to use. Yeah.**  
20 Q. All right. Do you know if there are tapes manufactured  
21 specifically for the purpose of collecting surface  
22 samples?  
23 **A. I've seen some that have been used. So, yes, I would**  
24 **say there are some that people have used, and they will**  
25 **use either that that's already built in on a slide, and**

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**Rocky Waters Mountain Inn, LLC v. The Travelers Indemnity Company of America**

Page 58

1 then they will switch over to the Scotch 600 if it's an  
2 area where it's difficult. For instance, like a curved  
3 surface or a difficult surface, then they'll switch over  
4 to the tape.  
5 Q. If you go out and collect samples, what kind of tape do  
6 you use?  
7 A. I use the Scotch 600 --  
8 Q. Okay.  
9 A. -- because of the optical properties.  
10 Q. It's clearer?  
11 A. It's clear. It's not like the Magic tape, the green  
12 tape where you have all this debris in front. You can't  
13 see through it.  
14 Q. Under methods, it then says no chemical identification  
15 was conducted on the soot-like, char-like particles and  
16 carbon black-like particles do you see that?  
17 A. Yes.  
18 Q. And is that a reference to the fact you're doing a Level  
19 1 analysis as opposed to a Level 4?  
20 A. Yes.  
21 Q. Okay. It says soot-like. What do you mean by soot-like  
22 particles?  
23 A. It means that the analysis that I'm doing is there are  
24 other particles that could be similar to soot and would  
25 look visually similar upon identification. So I'm doing

Page 59

1 a presumptive analysis of soot. So I'm saying this  
2 appears to be soot to me. It has optical properties for  
3 it, but, if you want to do more thorough analysis, you  
4 can go to a Level 4 to make sure that that -- that that  
5 presumption that I'm making in this case is correct.  
6 Q. Okay. What other kinds of particles look like soot?  
7 A. There are a couple different ones, and they'll typically  
8 manifest slightly different. But paint particles, for  
9 instance, spray paint particles, if they're aerosolized  
10 and they break up, they'll typically be -- they'll  
11 typically be in spheres, but sometimes the spheres break  
12 up, and they can look somewhat similar to a soot-like  
13 particle. If a -- if some of the carbon-like particles  
14 will break up, you'll also see something that looks  
15 fairly similar to -- to soot. And there may be some  
16 other ones that I can't recall off -- off the top of my  
17 head. There's some mineral deposits or minerals that  
18 will look somewhat similar; although, they're -- the  
19 light refraction on it is slightly different. But,  
20 again, if it's a really heavy, dense piece, then I'm  
21 having a difficult time trying to do that, and I would  
22 say, you know, I'd make some notes on that one.  
23 Q. Okay. And you list three types of particles here;  
24 soot-like, char-like and carbon black-like. What is a  
25 carbon black-like particle?

Page 60

1 A. Those are typically -- they can break into smaller  
2 particles like soot, but they're typically very  
3 spheroidal. So there will be a cluster into a sphere,  
4 as opposed to that rough configuration that you would  
5 have with a soot that looks like very tiny grapes. This  
6 would be a very black sphere, and it typically will  
7 range in between, oh, let's say 3 microns in size to 20  
8 to 30 microns in size.  
9 Q. And that's -- that's how it appears under the  
10 microscope, right?  
11 A. That's how it appears under the microscope, yes.  
12 Q. And what I'm actually wondering is just what are carbon  
13 black particles, just what kinds of materials?  
14 A. You could produce them like from a copy machine, very  
15 similar to it. You'll have a -- so they're -- it's  
16 essentially strictly made out of carbon, and they tend  
17 to agglomerate based on the temp -- and I'm not an  
18 expert with respect to the temperature required for the  
19 production of it. But they will agglomerate much  
20 differently than the soot particles.  
21 Q. Do they come from specific types of materials?  
22 A. I'm not -- I'm not sure of all of the materials where  
23 that comes from.  
24 Q. Okay.  
25 A. No.

Page 61

1 Q. By the way, did you -- were you looking at all for ash?  
2 A. I was not.  
3 Q. Okay. And you understand that ash is a different  
4 substance than char and soot?  
5 A. Yes.  
6 Q. By the way, how would you define char?  
7 A. Char would be a -- typically a product of combustion  
8 that results in plainer, typically opaque to moderately  
9 opaque material that has some of the original  
10 constituent of the material that's burned, and it will  
11 have a very flat sheetlike appearance. So the aspect  
12 ratio is very thin, and it will have much more length  
13 and width, and it will have sharp edges under light  
14 microscopy.  
15 Q. How do you define soot?  
16 A. Soot would be submicron sized spheroidal particles that  
17 are aggregated in microscopic grapelike structures that  
18 have rough edges, and they're produced as a part of a  
19 combustion process, typically different than the process  
20 of char-like particles.  
21 Q. And then how would you define ash?  
22 A. Ash would be the mineral, minerals that are typically  
23 released during the production of fire.  
24 Q. Is it fair to say that in terms of on the spectrum of  
25 the completeness of combustion of the material that char

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**Videotape Deposition of Neil G. Carlson - 2/28/2020**  
**Rocky Waters Mountain Inn, LLC v. The Travelers Indemnity Company of America**

Page 62

1 is the least combusted and ash would be the final  
2 product of combustion?  
3 **A. I -- I don't know.**  
4 Q. Oh, okay. All right. And then it says under methods,  
5 presumptive identification was based on particle  
6 morphology, correct?  
7 **A. Yeah.**  
8 Q. And I think we've already pretty much touched on that.  
9 And then you've got photographs attached to Exhibit 3  
10 here. It looks like just three photographs, correct?  
11 **A. That's correct. Yeah.**  
12 Q. And are these photographs that were actually taken from  
13 the samples you analyzed?  
14 **A. Yeah. Yes. That's correct.**  
15 Q. Did you take any more photographs than these three?  
16 **A. I probably did, and I -- I chose the ones that seemed to**  
17 **be the most relevant to...**  
18 Q. Okay. Do you know if you still have all of the  
19 photographs that you took?  
20 **A. I do not know that.**  
21 Q. I'm sorry. You do not know?  
22 **A. I do not know if I do.**  
23 Q. Okay.  
24 **A. I sometimes look for them and not found them. So --**  
25 Q. Okay.

Page 63

1 **A. -- in the past.**  
2 Q. On Exhibit 2, it looks like you included eight  
3 photographs, correct?  
4 **A. Let's see. Well, I've got one, two, three, four, five,**  
5 **six, seven, eight. Yep.**  
6 Q. So it looks like a total, between the two reports,  
7 you've got 11 photographs total, correct?  
8 **A. Yes.**  
9 Q. How many different samples do you have photographs of in  
10 this report?  
11 **A. One. Let's see. One, two.**  
12 MR. SCOTT: Which report?  
13 MR. DEVILLING: Let me -- let me strike  
14 that.  
15 Q. (MR. DEVILLING) How many samples do you have  
16 photographs of in both reports?  
17 **A. Okay. One --**  
18 Q. That's still a poor question. Let me strike that.  
19 **A. Okay.**  
20 Q. There are 20 samples total between the two reports,  
21 correct?  
22 **A. Let's count that up.**  
23 Q. No. That's not even correct.  
24 **A. That's not correct.**  
25 Q. All right. Let's take them one report at a time.

Page 64

1 **A. Well, that sounds good.**  
2 Q. Usually when Clint speaks, I learn.  
3 **A. Eighteen samples in --**  
4 Q. All right. So Exhibit 2, Days Inn, we've got a total of  
5 20 samples, correct?  
6 **A. Yes.**  
7 Q. All right. And of those 20 samples, how many samples do  
8 you have pictures of?  
9 **A. Six.**  
10 Q. And then in the other report, Exhibit 3, how many  
11 different samples did you analyze?  
12 **A. Did I -- I analyzed -- let me check for a final number**  
13 **there. Eighteen.**  
14 Q. And how many photographs do you have? It looks like  
15 three different samples of photographs, correct?  
16 **A. Yes.**  
17 MR. DEVILLING: We've been going a while.  
18 Why don't we take about a five-minute break?  
19 THE WITNESS: Okay.  
20 THE VIDEOGRAPHER: Very good.  
21 MR. SCOTT: All right.  
22 THE VIDEOGRAPHER: We are going off the  
23 record and the time is 2:25 p.m.  
24 (Break taken at 2:25 p.m. - 2:33 p.m.)  
25 THE VIDEOGRAPHER: We are back on the

Page 65

1 record, and the time is 2:33 p.m.  
2 Q. (MR. DEVILLING) Okay. In looking at any of the samples  
3 that you reviewed in this case for either hotel, did you  
4 find any traces of chemical fire retardant in the  
5 samples?  
6 **A. I was not analyzing for that, no.**  
7 Q. Okay. Did you see anything that you thought was trace  
8 amount of fire retardant?  
9 **A. I would not know it if I saw it.**  
10 Q. Okay. Are you aware -- and if this is outside of your  
11 expertise, that's fine. Just let me know. But are you  
12 aware of any regulations governing cleanup of wildfire  
13 debris?  
14 **A. I don't know specifically on regulations.**  
15 Q. All right. In terms of recommendations for remediating  
16 any debris there, is that something you would defer to  
17 Mr. Irmiter on?  
18 **A. I would do that, yes.**  
19 Q. Okay. I noticed there's no specific recommendations  
20 contained in either of your reports, correct?  
21 **A. That is correct.**  
22 Q. Okay. Your report has dates on which the cassette  
23 samples and tape samples were taken. I've got  
24 January 4th. Well, it looks like January 3rd and 4th,  
25 2018, on the Days Inn. And I've got January 4th and 5th

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**Videotape Deposition of Neil G. Carlson - 2/28/2020**  
**Rocky Waters Mountain Inn, LLC v. The Travelers Indemnity Company of America**

Page 66

1 on the Rocky Waters Motor Inn on your reports.  
2 Do you have any opinion as to whether there are  
3 advantages to taking samples closer in time to the  
4 event?  
5 **A. I need to think about that. It's -- it's helpful on the**  
6 **Air-O-Cell cassette if you are taking them immediately**  
7 **after rather than at a longer time since because you**  
8 **have a chance to see that suspension that's in the air**  
9 **immediately after the smoke event. And then the people**  
10 **that are actually taking the sample that have experience**  
11 **with fire remediation can take that into account, the**  
12 **time differential.**  
13 Q. Do you agree that air samples are just a snapshot in  
14 time of the air at a given location?  
15 **A. Yes.**  
16 Q. What is gas-phase soot, if you know?  
17 **A. I'm not familiar with that term.**  
18 Q. Okay. Do you know whether the -- and this might be an  
19 obvious question. Maybe not. But the particles that  
20 you're looking at under a microscope, those are  
21 solid-phase particles, correct? In other words --  
22 **A. I would think they would be because -- again, I -- that**  
23 **term, that differentiation between solid and gas phase**  
24 **is something I haven't looked at specifically.**  
25 Q. Okay. Are you familiar with the different forms of

Page 68

1 it's different between the tease tape and the  
2 Air-O-Cell. Would you like me to clarify that, or...  
3 Q. Sure.  
4 **A. Sure. With the tease tape sample, the slide is placed**  
5 **down. The mounting fluid is placed on the slide, and**  
6 **then the tape is placed over that. And then I described**  
7 **previously how the Air-O-Cell is put together.**  
8 Q. Okay. Did you use any polarized light in your  
9 microscopy?  
10 **A. There was no polarized light. It was optical light**  
11 **microscopy.**  
12 Q. Did you use any reflected light?  
13 **A. I'm not sure exactly what you're referring to on that.**  
14 Q. Is there a microscopy technique known as -- that's a  
15 reflective light technique?  
16 **A. I'm not using a specific reflective light technique.**  
17 Q. Okay. Is there a microscopy technique known as dark  
18 field illumination?  
19 **A. There is one, but I didn't use it.**  
20 MR. DEVILLING: Okay. Okay. Those are all  
21 the questions I have. Thank you for your time.  
22 THE WITNESS: You're welcome, sir. How long  
23 are you here?  
24 MR. SCOTT: No questions. Neil will read  
25 and sign.

Page 67

1 soot, such as aciniform carbon, carbonaceous xerogel  
2 particles, carbon cenospheres, and coke and char  
3 fragments?  
4 MR. SCOTT: Object to the form.  
5 THE WITNESS: Just clarification, do I still  
6 answer, or is that just a...  
7 MR. SCOTT: Yes.  
8 THE WITNESS: Okay. All right. Just want  
9 to make sure that -- okay.  
10 **A. The aciniform I'm somewhat familiar with, and that's**  
11 **what I've described for you. That's the grapelike**  
12 **structures. The other three I'm not as familiar with.**  
13 Q. Okay. So we're dealing with aciniform carbons here in  
14 this case; is that correct?  
15 **A. Yeah. The ones that I'm seeing are more -- that -- that**  
16 **I'm able to see and that I've -- now there may be the**  
17 **other ones may have been present, but I've been focused**  
18 **on the aciniform.**  
19 Q. Okay.  
20 **A. And to clarify, that's with respect to soot.**  
21 Q. Okay.  
22 **A. Yeah.**  
23 Q. What kind of mounting medium is used under the  
24 microscope? A slide?  
25 **A. Yeah. Microscope slide was placed on the -- on the --**

Page 69

1 THE WITNESS: All right.  
2 THE VIDEOGRAPHER: And we are going off the  
3 record, and the time is now 2:40 p.m.  
4 (Whereupon, the deposition concludes at  
5 2:40 p.m.)  
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Page 70

	Page/Ln	Correction	Reason
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Page 71

I, Neil G. Carlson, have read this transcript, pages 1 - 69, and acknowledge herein its accuracy except as noted on the errata sheet.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Notary Public

1 STATE OF MINNESOTA  
2 CERTIFICATE  
3 COUNTY OF CARVER

4 I, Christine M. Clark, RPR, hereby certify  
5 that I reported the Videotape Deposition of Neil G.  
6 Carlson on this 28th day of February, 2020, in  
7 Minneapolis, Minnesota, and that the witness was by me  
8 first duly sworn to tell the truth and nothing but the  
9 truth concerning the matter in controversy aforesaid;

10 That I was then and there a notary public in and  
11 for the County of Carver, State of Minnesota; that by  
12 virtue thereof I was duly authorized to  
13 administer an oath;

14 That the foregoing transcript is a true and  
15 correct transcript of my stenographic notes in  
16 said matter, transcribed under my direction and  
17 control;

18 That the cost of the original has been  
19 charged to the party who noticed the deposition and  
20 that all parties who ordered copies have been  
21 charged at the same rate for such copies;

22 That the reading and signing of the  
23 deposition was not waived;

24 That I am not related to any of the  
25 parties hereto, nor interested in the outcome of the  
26 action and have no contract with any parties,  
27 attorneys or persons with an interest in the action  
28 that has a substantial tendency to affect my  
29 impartiality;

30 WITNESS MY HAND AND SEAL this 3rd day of  
31 March 2020.

32  
33

34 -----  
35 Christine M. Clark, RPR  
36 Notary Public

37  
38



**Videotape Deposition of Neil G. Carlson - 2/28/2020**  
**Rocky Waters Mountain Inn, LLC v. The Travelers Indemnity Company of America**

Page 73

<b>A</b>					
able 31:4 40:12	aid 54:13	21:12,15	10:20,20	better 31:7	carbonaceous
55:24 67:16	air 6:19,21	23:21 35:6	assist 6:17	beyond 16:7	67:1
above-entitled	10:19,20	48:9 65:6	23:20	20:17 26:21	carbons 67:13
4:24	23:15 38:19	annually 12:12	assistant 23:23	26:21 27:5	career 8:17
acceptable	38:22,23	answer 5:12,17	assisting 6:23	big 34:20	Carlson 1:19
10:10	39:3 66:8,13	33:16 34:23	associated	Biology 8:6	4:1,7,23 5:4
accepted 40:25	66:14	40:13 46:8	21:7 33:14	bit 16:24 28:4	6:4,4,10,12
account 66:11	Air-O 53:10	46:14,18	39:3	31:7 45:24	9:19 10:16
accreditation	Air-O-Cell	47:1 52:7	Association	black 32:4 60:6	10:17 11:9
21:3,11,14,16	17:25 29:17	67:6	21:18 28:20	60:13	71:1 72:5
21:19 28:4,7	29:18,22	anticipate 31:3	assume 8:18	black-like	Carlson's 3:7
28:13,18,20	30:7,23,24	anyone's 13:6	25:18 45:13	58:16 59:24	Carver 72:3,8
29:2	33:1,4 35:7	apart 39:1	assuming	59:25	case 4:9 5:6
accredited	41:6 56:23	apparently	11:11	BOBBITT 2:3	6:6,7 7:13,20
21:9,24 22:4	66:6 68:2,7	13:2	attached 62:9	bolded 19:8	15:8 19:3
22:20,21	Alliance 26:14	appear 55:8	attempting	bottom 54:1,6	22:11 24:16
28:22,23,25	26:23	appearance	14:19	54:9	25:11,25
accuracy 71:2	allowed 45:15	31:23 61:11	attend 7:14	box 25:10 29:8	26:7 30:6
accurate 10:1	amber 32:5	APPEARANCES	attorneys 4:15	boxes 27:24	37:2,6 50:4
10:1 14:11	America 1:6	2:1	72:18	Boynton 30:21	59:5 65:3
19:25	4:9	Appearing 2:7	authorized	brand 16:3	67:14
acid 54:13	American	appears 57:16	72:8	break 5:15	cases 9:4 13:1
aciniform 67:1	21:17 28:19	59:2 60:9,11	available 15:6	16:24 59:10	35:8 38:21
67:10,13,18	amount 31:10	apply 5:11	15:18	59:11,14	56:5,15,17
acknowledge	65:8	approached	average 33:8	60:1 64:18	cassette 29:17
71:2	analysis 6:17	30:15	aware 28:9,15	64:24	29:19,22
action 4:24	7:2,3,15,22	appropriately	45:16,19	Brian 2:13 4:17	30:7,23,24
72:17,18	7:24 8:15,16	23:10	65:10,12	5:4	33:1,4 53:10
actual 36:25	10:18,18,21	approximate		brings 40:24	65:22 66:6
37:5	10:22,23	34:12	<b>B</b>	budget 45:14	caused 9:6
add 8:23	11:1,2,25	approximately	back 14:21	building 9:8	20:11
added 7:11	12:6 13:11	10:14,15	43:12 52:24	12:18,19	ceiling 47:23
additional 7:10	13:13,15,16	17:1 33:5	54:21 55:10	13:10 14:4	cell 10:9
18:17,19	15:4,13 16:5	34:8,10	64:25	23:3,11,12,18	cenospheres
20:17	17:3,5,6,10	approximation	background	45:18	67:2
address 15:15	17:14,15,16	34:25	22:23,25	buildings 23:2	Center 6:24
15:16	17:24 18:2,6	architecture	54:20	23:4	certain 17:17
adjunct 6:15	18:9,11,23	6:21	bag 29:9	built 57:25	52:22
administer	20:13,25	area 27:11	ball-parking	bulk 18:1	Certainly 9:25
72:9	21:8 22:10	52:15 56:1,3	38:5	burn 32:3	27:9
advantages	26:12,22	56:13,19,20	ballpark 38:10	burned 30:22	CERTIFICATE
66:3	27:4,16	56:24 58:2	39:23	31:6 61:10	72:2
aerodynamics	28:10,12,17	areas 19:8	based 26:18	burner 31:8	certification
39:8	28:25 30:16	55:16 56:4,8	27:2 37:11	burning 45:21	23:4
aerosolized	30:24 31:5,5	56:11 57:7,7	40:22 54:24	46:12 52:2,3	certified 23:23
59:9	32:25 37:3,4	ash 61:1,3,21	55:1 60:17	burnt 48:18	29:1
afar 55:20	47:9 48:19	61:22 62:1	62:5	business 13:22	certify 72:4
affect 72:18	49:2 56:14	asked 17:4	basement		chain 27:12
affiliated 6:5	58:19,23	18:24 28:4	27:20	<b>C</b>	chains 15:9
aforesaid 72:6	59:1,3	28:21 30:16	basically 47:16	California	chance 66:8
afternoon 4:5	Analytical 6:4	asking 5:12	basis 25:18	26:18	change 54:4,5
Agency 4:3,14	6:5,8,10,12	10:7 11:25	39:25	call 11:18 15:5	54:6,8
agglomerate	9:20 10:16	17:6 28:11	bathroom	32:6	char 8:24 9:16
32:11 60:17	10:17 11:9	52:16	47:23	campus 6:20	10:23 11:13
60:19	analyze 12:8	Asp/Pen 36:4	bdevilling@f...	31:10	11:14 12:6
aggregated	13:4 16:18	36:6,7,11,17	2:12	capable 17:2	13:15,16
61:17	25:4 33:1	38:6	began 30:15	17:10	14:5,16
agree 66:13	36:16 64:11	aspect 61:11	believe 7:5	carbon 58:16	18:11 27:2
agreement	analyzed 8:18	aspects 7:21	11:21 12:24	59:24,25	28:10,13
41:3	9:5,15 14:3	aspergillus	24:25 26:20	60:12,16	30:13,25
Ah 45:3 47:20	14:16,25	36:8,12	Benchmark 4:2	67:1,2	31:2,9,20,23
53:17 54:7	62:13 64:12	asphalt 23:15	4:14	carbon-like	31:25 32:2
	analyzing 8:1,3	assessments	best 14:22	59:13	32:13 33:7

**Benchmark Reporting Agency**  
**612.338.3376**

33:15,25	<b>class</b> 6:21	10:12 11:21	22:8,21,22	<b>cubic</b> 37:5,8	42:4,9 47:15
35:10,19	<b>clays</b> 48:18	12:20 13:19	24:13 25:1	38:16 45:18	47:17,24
37:3,21 38:1	<b>cleanup</b> 65:12	26:13,18	25:16,17,20	<b>culturable</b>	49:9,15
38:2 40:6	<b>clear</b> 29:2,5	<b>compare</b> 19:22	25:21 29:15	21:20	<b>Department</b>
41:23 42:1	30:1 33:19	31:16 50:18	34:4 35:20	<b>current</b> 5:24	6:1
42:15,15	57:17 58:11	<b>comparing</b>	35:23 36:5	7:8,9	<b>depends</b> 29:11
43:2,10,22,25	<b>clearer</b> 57:12	51:1	36:14,17	<b>currently</b> 5:25	33:10 38:21
44:2,3,7,11	58:10	<b>complete</b> 7:11	37:8 41:21	<b>curved</b> 58:2	45:11 57:3
44:13,17,21	<b>clearly</b> 40:1	20:3	41:24 42:3	<b>custody</b> 27:12	<b>deposes</b> 5:1
45:3,24 46:2	<b>Clint</b> 4:19 64:2	<b>completeness</b>	42:23,25	<b>CV</b> 3:7 7:5,21	<b>deposition</b>
46:6,10,16,19	<b>Clinton</b> 2:6	61:25	43:4,6,8,9,13	10:5	1:17 3:11 4:1
46:24 47:12	<b>close</b> 30:24	<b>composition</b>	43:15,20,21		4:7 5:7 69:4
48:10 49:1	40:23	17:13 18:3	43:22,25	<b>D</b>	72:4,13,15
49:21,23	<b>closely</b> 57:8	<b>concentration</b>	44:2,5,8,11	<b>D</b> 2:4 3:1	<b>deposits</b> 59:17
50:2,12,15	<b>closer</b> 66:3	20:21 47:25	44:13,17,22	<b>damage</b> 9:6	<b>depth</b> 32:8
51:22 52:13	<b>cluster</b> 55:23	<b>concerning</b>	45:4,25 46:4	23:2,19	<b>describe</b> 15:11
52:24 54:17	55:23 60:3	72:6	47:6,8,10,13	<b>dark</b> 32:13	<b>described</b>
55:10,24	<b>clusters</b> 32:12	<b>concludes</b> 69:4	48:14,16,23	55:22 57:10	17:18 41:21
61:4,6,7,25	32:16	<b>conducted</b>	49:24,25	68:17	49:16 67:11
67:2	<b>CMU</b> 33:22	58:15	50:10,13,16	<b>darker</b> 50:2	68:6
<b>char-like</b> 20:21	<b>cognizant</b> 21:7	<b>configuration</b>	50:25 51:3,6	<b>dataset</b> 11:6	<b>describing</b>
30:5 49:3	<b>coke</b> 67:2	60:4	51:15 52:22	<b>date</b> 10:1,10,14	49:9
58:15 59:24	<b>collect</b> 57:14	<b>consider</b> 7:22	52:23 53:1	27:14,15	<b>DESCRIPTION</b>
61:20	58:5	16:12 46:14	53:11 54:2,3	<b>dates</b> 65:22	3:6
<b>characteriza...</b>	<b>collecting</b>	<b>considered</b>	54:5 56:14	<b>day</b> 4:2 72:5,20	<b>designated</b>
39:16,17	57:21	39:25 41:9	59:5 62:6,10	<b>Days</b> 3:9 19:20	36:7
<b>characterized</b>	<b>collection</b>	41:11	62:11,14	20:2,4 24:23	<b>determination</b>
41:16	30:19	<b>constituent</b>	63:3,7,21,23	25:15,19	30:7
<b>characterizing</b>	<b>color</b> 19:12	61:10	63:24 64:5	26:9 29:15	<b>determine</b>
20:18	<b>colored</b> 32:5	<b>constitutes</b>	64:15 65:20	36:17 50:19	14:19 17:12
<b>charge</b> 18:8,17	50:3	40:25	65:21 66:21	51:1,6,14	20:12 23:9
18:19,21,23	<b>column</b> 39:11	<b>construction</b>	67:14 72:10	64:4 65:25	27:4 40:4
18:25	47:15	22:23 23:1,4	<b>Correction</b>	<b>dead</b> 48:14,16	45:13
<b>charged</b> 72:13	<b>combusted</b>	23:5	70:2	<b>deal</b> 21:6	<b>determining</b>
72:14	62:1	<b>construed</b> 19:7	<b>cost</b> 72:12	<b>dealing</b> 67:13	8:20 9:16
<b>check</b> 64:12	<b>combustion</b>	<b>consulting</b> 6:3	<b>count</b> 11:6	<b>debris</b> 8:1,3,15	45:6
<b>chemical</b> 17:6	52:10 61:7	23:16 26:14	14:21 33:11	8:18 9:6,15	<b>Develling</b> 2:13
17:10,16	61:19,25	<b>Consulting's</b>	35:14 40:25	9:17 11:1	16:15
18:2,3,5	62:2	26:24	63:22	13:4,10 14:3	<b>developing</b>
20:23 58:14	<b>come</b> 15:2	<b>contacted</b> 13:3	<b>counting</b> 55:11	16:18 17:3	23:20
65:4	23:19 30:13	<b>contained</b>	<b>counts</b> 33:3	57:8 58:12	<b>device</b> 23:15
<b>chemistry</b> 8:6	39:15 40:10	65:20	41:16 54:23	65:13,16	<b>Devilling</b> 3:2
<b>Chicago</b> 2:11	60:21	<b>container</b> 29:6	54:24 55:1	<b>decision</b> 55:4	4:17,17 5:3,4
<b>choose</b> 32:23	<b>comes</b> 12:7	30:11	<b>County</b> 72:3,8	56:1	46:22 47:4
<b>choosing</b> 56:3	13:9 26:5	<b>contains</b> 8:20	<b>couple</b> 11:22	<b>Defendant</b> 1:7	51:10,12
<b>chose</b> 62:16	27:8 60:23	<b>continuation</b>	13:21 21:18	2:14	52:9 63:13
<b>Christine</b> 1:25	<b>comfort</b> 31:2	24:9	25:5 35:12	<b>defer</b> 65:16	63:15 64:17
4:12 72:4,23	<b>comfortable</b>	<b>contract</b> 72:17	56:21 59:7	<b>define</b> 61:6,15	65:2 68:20
<b>circles</b> 32:2	31:4	<b>control</b> 72:11	<b>course</b> 6:17,18	61:21	<b>diameter</b> 34:13
<b>circumscribed</b>	<b>coming</b> 15:6,9	<b>controversy</b>	6:24 24:6	<b>defined</b> 32:1	<b>diameters</b>
34:7	<b>commencing</b>	72:6	<b>courses</b> 6:16	<b>definitely</b> 9:13	34:10
<b>claim</b> 26:2	4:4	<b>copies</b> 19:14	7:1,2,3 23:24	12:12 14:8	<b>differ</b> 31:24
<b>claims</b> 9:5	<b>comment</b>	72:13,14	24:7,11	<b>degree</b> 8:5	<b>difference</b>
<b>clarification</b>	18:24	<b>copy</b> 7:5 19:19	<b>court</b> 1:1 4:10	23:24	17:21 51:21
11:12 67:5	<b>comments</b> 53:3	20:3,7 27:13	4:12,21 5:18	<b>degrees</b> 7:10	<b>differences</b>
<b>clarify</b> 9:1	<b>communicati...</b>	47:8 60:14	<b>cover</b> 29:25	<b>delivered</b>	51:2
16:20 28:9	14:25 15:4	<b>corner</b> 27:19	<b>covered</b> 50:6	25:11	<b>different</b> 8:1
57:13 67:20	<b>compact</b> 16:24	<b>correct</b> 6:8,9	<b>covering</b> 57:7	<b>dense</b> 39:22	15:2 18:6
68:2	<b>companies</b>	6:11 7:5 8:8	<b>coverslip</b> 30:1	55:17 56:8	21:18 25:5
<b>clarifying</b>	11:10,22	8:9,11 10:10	<b>coverslips</b>	56:11 59:20	30:19,22
53:20,21	13:21,24	12:18,21	16:22	<b>denser</b> 56:3	31:1 33:3
<b>Clark</b> 1:25 4:12	<b>company</b> 1:6	19:19 20:4,7	<b>cscott@gilbe...</b>	<b>density</b> 30:8	39:2 47:25
72:4,23	4:9 9:22,23	20:14,15	2:5	39:12 41:20	52:10,11

**Videotape Deposition of Neil G. Carlson - 2/28/2020**  
**Rocky Waters Mountain Inn, LLC v. The Travelers Indemnity Company of America**

Page 75

54:22 59:7,8 59:19 61:3 61:19 63:9 64:11,15 66:25 68:1 <b>differential</b> 66:12 <b>differentiate</b> 30:13 31:19 36:10,12 <b>differentiation</b> 66:23 <b>differently</b> 33:1 60:20 <b>difficult</b> 11:5 32:15 40:3 55:22 58:2,3 59:21 <b>direction</b> 72:11 <b>directions</b> 27:18 <b>directly</b> 12:8 13:4 30:2,3 <b>discern</b> 55:22 <b>discussion</b> 20:20 53:7 <b>disposal</b> 28:2 <b>dispose</b> 30:10 <b>distance</b> 55:21 <b>distinction</b> 17:19 <b>distributed</b> 56:7 <b>District</b> 1:1,1 4:10,10 <b>disturbance</b> 38:24 <b>disturbed</b> 39:6 <b>divide</b> 33:13 <b>dividing</b> 33:22 <b>Docket</b> 1:5 <b>doing</b> 10:24 14:21 17:2,4 17:5,10,14,23 18:8 20:24 21:2 23:13 32:17 37:4 45:10 48:25 54:23 55:10 58:18,23,25 <b>door</b> 25:10 <b>drafting</b> 18:17 <b>drainage</b> 23:12 <b>drink</b> 35:5 <b>drop</b> 25:6 <b>dropped</b> 47:23 <b>due</b> 32:3 <b>duly</b> 4:25 72:6 72:8  <b>E</b> E 2:13 3:1 earlier 22:5	28:4,21 56:12 <b>easier</b> 5:18 38:21 54:18 <b>Eastern</b> 1:1 4:10 <b>easy</b> 49:13 <b>edges</b> 32:1,4 32:12,14 61:13,18 <b>education</b> 24:9 <b>eight</b> 63:2,5 <b>Eighteen</b> 64:3 64:13 <b>either</b> 17:25 25:22 57:5 57:25 65:3 65:20 <b>electrical</b> 31:10 <b>electron</b> 18:4 32:18 <b>elemental</b> 17:3 17:13 <b>email</b> 2:5,12 15:1,3,7,9,9 <b>emails</b> 14:20 <b>emanating</b> 46:17 <b>EMLab</b> 7:15 40:21 <b>EMPAT</b> 21:20 28:20 <b>employed</b> 5:25 <b>employment</b> 5:24 <b>engineering</b> 22:24 <b>enhanced</b> 18:4 <b>Enrique</b> 26:14 <b>entire</b> 35:7 56:13 <b>entities</b> 11:9 <b>environment</b> 38:25 <b>Environmental</b> 6:1 8:10,14 <b>equipment</b> 16:7,11,17 17:2,10 27:25 <b>ergonomic</b> 10:18 <b>errata</b> 70:1 71:3 <b>escape</b> 11:22 <b>escaping</b> 16:2 <b>essentially</b> 16:2 20:24 35:12,17 39:18 49:20 60:16 <b>established</b> 45:16	<b>establishes</b> 41:15 <b>estimate</b> 11:3 14:23 34:8 49:10 <b>estimates</b> 26:1 26:4 <b>evenly</b> 56:7 <b>event</b> 66:4,9 <b>exact</b> 9:7 15:24 34:23 35:25 37:22 40:11 <b>exactly</b> 16:16 22:3 40:16 68:13 <b>Examination</b> 3:2 5:2 <b>example</b> 33:20 35:19 47:22 48:13 49:8 <b>examples</b> 11:8 <b>Excuse</b> 8:17 35:4 <b>Exeter</b> 2:3 <b>exhibit</b> 7:4 19:19 20:3,6 24:25 33:20 36:3,16 39:11 45:21 47:4,8 49:6 50:22,24 53:5 62:9 63:2 64:4,10 <b>Exhibits</b> 3:4,11 19:14 24:17 <b>existence</b> 9:22 9:23 <b>expect</b> 46:11 46:19,23 <b>experience</b> 23:3 37:11 66:10 <b>expert</b> 26:7,8 60:18 <b>expertise</b> 30:12 65:11 <b>explain</b> 29:5 51:8,17 54:13 <b>express</b> 34:15 <b>expressed</b> 24:16 35:22 <b>extensive</b> 19:6 <b>external</b> 9:9 <b>extremely</b> 50:5  <b>F</b> fact 26:21,25 58:18 faculty 6:15,23 fair 61:24 fairly 32:5 40:1 40:22 56:15	56:18 59:15 <b>familiar</b> 17:19 30:17,18 66:17,25 67:10,12 <b>far</b> 14:21 15:8 24:18,21 34:20 40:20 45:14 <b>faulty</b> 26:6 <b>FBS</b> 11:20,24 12:13,17 13:17 14:17 14:24 19:4 25:3,15,20 27:10 45:10 57:14 <b>February</b> 1:25 4:2 72:5 <b>FedEx</b> 25:9 <b>fee</b> 18:8 <b>fees</b> 18:10 <b>field</b> 22:23 24:1 30:4 33:9,17 34:2,5,6,6 35:7,11,15,18 35:22 36:1 36:19,21 38:14 39:24 41:8 42:2,17 49:11,13,17 49:18,22 55:3,5 56:2 68:18 <b>fields</b> 33:5 <b>fifth</b> 54:11 <b>figure</b> 35:1,25 37:17 55:9 <b>filed</b> 4:9 <b>final</b> 62:1 64:12 <b>find</b> 33:15 41:11 55:7 55:14,18 65:4 <b>finding</b> 40:18 <b>findings</b> 26:24 <b>fine</b> 65:11 <b>finished</b> 28:3 <b>fire</b> 9:9 11:1 13:1,4,10 21:12 23:19 27:4 61:23 65:4,8 66:11 <b>fireplace</b> 45:22 46:12,17 50:9,18 52:2 52:3 <b>fires</b> 31:10 <b>firm</b> 12:25 <b>firms</b> 13:24 <b>first</b> 4:25 11:16 13:12 15:11	19:19 24:22 27:11,20,21 30:15 36:16 53:8 72:6 <b>five</b> 63:4 <b>five-minute</b> 64:18 <b>flat</b> 18:8,10 61:11 <b>floor</b> 27:20,21 <b>fluid</b> 27:25 30:1 68:5 <b>fluids</b> 16:21 <b>focus</b> 56:18,20 <b>focused</b> 37:3 67:17 <b>follow</b> 37:16 <b>follows</b> 5:1 <b>foot</b> 45:18,18 <b>FORAN</b> 2:10 <b>force</b> 39:9 <b>foregoing</b> 72:10 <b>Forensic</b> 12:17 12:19 13:9 14:4 <b>forget</b> 20:10 <b>form</b> 16:13 29:19 46:21 47:2 51:9 52:5 67:4 <b>forms</b> 66:25 <b>Forty</b> 12:15 <b>found</b> 27:1,1,2 50:12 62:24 <b>four</b> 63:4 <b>fragments</b> 67:3 <b>front</b> 58:12 <b>fuchsin</b> 54:12 54:15 <b>full</b> 55:6 <b>fully</b> 24:16 <b>fungal</b> 6:24 10:17,17,21 11:2,13 13:7 18:11 21:6 21:15,16,21 28:17 30:6 36:23,24,25 37:1,4 54:16 55:23 <b>fungi</b> 21:20  <b>G</b> G 1:19 4:1,23 71:1 72:4 gas 66:23 gas-phase 66:16 gel 29:23,24 general 8:10 8:13 29:16 32:5 41:3	<b>generally</b> 40:25 52:10 <b>generated</b> 31:13 <b>getting</b> 29:6 30:18 <b>give</b> 5:12 9:10 9:11 10:10 11:3,8 14:6 18:24 20:20 34:7,11 37:5 37:22,22 38:9 39:23 49:10 57:4 <b>given</b> 5:7 22:13 28:7,13 66:14 <b>gives</b> 54:20 <b>GLENNON</b> 2:10 <b>go</b> 14:20 16:7,9 16:9 33:9 35:13,15 42:1 49:7 50:8 52:24 53:3 55:13 58:5 59:4 <b>goes</b> 32:21,21 53:18 <b>going</b> 11:3,5 14:18 29:11 34:11 35:13 35:15 38:9 42:14 55:19 56:16 64:17 64:22 69:2 <b>good</b> 4:5 14:15 19:16 34:15 53:15 64:1 64:20 <b>governing</b> 45:17 65:12 <b>grade</b> 54:11 <b>grapeliike</b> 32:11 61:17 67:11 <b>grapes</b> 60:5 <b>green</b> 58:11 <b>grid</b> 22:19 <b>ground</b> 5:11 <b>group</b> 6:20 <b>growth</b> 36:25 37:1 <b>guess</b> 14:18,19  <b>H</b> H 2:6 half 39:1 hand 19:16 25:7 72:20 handled 21:17 happen 15:1 hard 50:5 haystack 35:16
---	--	---	---	---	---

**Benchmark Reporting Agency**  
**612.338.3376**

<b>head</b> 41:17 59:17 <b>health</b> 6:1,2 8:10,14 30:21 <b>heard</b> 17:17 <b>heavy</b> 36:4,17 39:15 40:2 47:24,24 49:16,17 59:20 <b>Hello</b> 5:4 <b>help</b> 16:20 39:19 40:13 47:21 48:7 54:16 <b>helpful</b> 9:11 12:2 66:5 <b>helps</b> 39:18 <b>Hemlock</b> 19:21 <b>hereto</b> 72:17 <b>high</b> 31:8 32:23 <b>higher</b> 13:14 46:24,24 <b>highly</b> 45:11 <b>hire</b> 11:9,10 <b>home</b> 10:20 15:14,17,21 16:4 22:1,7 22:17,20 27:17 <b>homeowners</b> 11:17 12:7 12:11 13:3,7 <b>hotel</b> 65:3 <b>hour</b> 18:25 39:1 <b>house</b> 27:19 <b>housing</b> 6:19 6:19 <b>huge</b> 56:20 <b>hygiene</b> 6:18 21:17 28:20 <b>hygienist</b> 6:2 29:1	16:9 <b>impact</b> 41:9 42:18 43:22 43:24 44:2,7 <b>impartiality</b> 72:19 <b>impossible</b> 57:9 <b>impression</b> 47:16 <b>in-person</b> 31:21 <b>include</b> 21:25 22:1 <b>included</b> 18:20 63:2 <b>Indemnity</b> 1:6 4:8 5:6 <b>independent</b> 39:15 <b>INDEX</b> 3:4 <b>individuals</b> 28:8,14 <b>indoor</b> 6:19,21 10:19,20 <b>industrial</b> 6:2 6:18 21:17 28:19 29:1 <b>information</b> 10:9 25:20 29:18,20 30:9 <b>initial</b> 55:18 <b>Inn</b> 1:3 3:8,9 4:8 5:5 19:20 20:2,4,8 24:23 25:15 25:16,19,20 26:9,10 29:15 36:17 47:5,10 50:19 51:1,2 51:6,6,13,14 53:4 64:4 65:25 66:1 <b>insects</b> 48:16 <b>inside</b> 29:22,22 <b>inspection</b> 6:20 <b>inspections</b> 23:16 <b>instance</b> 29:20 33:9 35:8,9 55:6,12,20 57:10 58:2 59:9 <b>instances</b> 23:6 23:7 <b>insurance</b> 26:2 <b>intakes</b> 23:15 <b>intention</b> 39:19 <b>interest</b> 72:18 <b>interested</b> 72:17	<b>interesting</b> 55:8 <b>interior</b> 36:15 37:19 <b>internal</b> 9:9 37:15 <b>interpret</b> 42:14 <b>interpretation</b> 18:24 19:3,6 19:7 20:13 20:17,19 36:21,24,25 40:7,20 41:13 42:2 42:10 47:13 52:25 <b>interpreted</b> 41:5 <b>introduce</b> 4:15 <b>investigating</b> 23:1 <b>involved</b> 9:5 11:1 45:14 <b>involving</b> 9:5 <b>Irmiter</b> 30:15 40:12 65:17 <b>Irmiter's</b> 12:20 <b>irregular</b> 32:12 <b>irrespective</b> 8:24 47:19 <b>isolated</b> 27:22 27:23 <b>issues</b> 13:2,5	<b>known</b> 68:14 68:17  <b>L</b> <b>lab</b> 15:12,17,19 15:23 21:23 22:1,20 27:11,17 29:19 30:9 32:25 <b>laboratories</b> 17:17,18,19 21:4,12,15 28:5 <b>laboratory</b> 6:17 16:12 17:22,23 21:9 22:8 28:21 30:20 30:21 <b>lactic</b> 54:12 <b>Lacto</b> 54:12,15 <b>large</b> 30:18 31:3,10 37:1 <b>larger</b> 31:25 32:7 <b>LaSalle</b> 2:10 <b>Lately</b> 13:12 <b>law</b> 12:25 13:24 <b>learn</b> 64:2 <b>legal</b> 2:18 4:13 6:11 <b>length</b> 32:7 61:12 <b>lens</b> 53:25 54:5 54:6 <b>let's</b> 8:4,22 10:2 14:7 16:20,22 18:4 20:2 24:22 28:9 28:12 29:23 33:18 34:17 34:19,19 36:22 37:23 38:24 39:1 40:6 47:4 49:7,7 60:7 63:4,11,22,25 <b>level</b> 9:16 17:18,18,21 17:21,23 18:3,8 20:24 21:2,8 26:12	26:21,25 27:21 31:2 46:24,24 51:17 58:18 58:19 59:4 <b>levels</b> 21:18 <b>licensed</b> 24:1,2 28:23 <b>licenses</b> 7:10 <b>licensing</b> 28:7 <b>lift</b> 45:22 <b>light</b> 15:23 16:3,5,5 17:5 17:23 26:5 32:15,19,21 38:6,8 39:14 39:25 49:10 53:11 55:12 59:19 61:13 68:8,10,10,12 68:15,16 <b>lighter</b> 50:3 <b>limit</b> 32:19 <b>limited</b> 41:1 42:18,21,25 43:6,8,13,14 43:17,18,22 44:13,17,21 45:3 <b>line</b> 29:21 <b>list</b> 59:23 <b>listed</b> 7:16 33:7 52:25 <b>little</b> 11:5 16:24 28:4 31:7 54:18 57:12 <b>LLC</b> 1:3 <b>located</b> 15:12 27:17 <b>location</b> 23:14 25:7 28:1 52:11 66:14 <b>locations</b> 15:13 <b>long</b> 9:22 68:22 <b>longer</b> 66:7 <b>look</b> 7:7,12 11:19 12:23 15:8 18:1 19:9 20:6 22:14,16 23:14 29:11 30:4,5 32:11 32:23,24 33:19 35:7 35:11 41:20 42:15,16 47:4 49:6 55:19 56:4 56:13,16,20 56:23 57:8 58:25 59:6 59:12,18	62:24 <b>looked</b> 30:25 31:13 35:3 37:11 66:24 <b>looking</b> 10:3,4 10:4 11:12 11:13 14:20 22:13 31:15 35:16 36:3 37:14,23 38:15 40:1 40:17,19 42:4,7 47:16 47:18 48:22 49:8,20 53:4 55:3,21 57:9 61:1 65:2 66:20 <b>looks</b> 12:24 35:13 45:24 50:9 57:10 59:14 60:5 62:10 63:2,6 64:14 65:24 <b>lot</b> 35:13 38:24 38:25 39:2 49:14 57:8 <b>lots</b> 47:25 48:21 <b>low</b> 35:14  <b>M</b> <b>M</b> 1:25 72:4,23 <b>machine</b> 60:14 <b>Magic</b> 58:11 <b>magnification</b> 17:24 18:4 53:2,14 54:4 57:1 <b>magnifications</b> 54:22 <b>mail</b> 25:8 <b>major</b> 41:2,3,9 <b>making</b> 59:5 <b>manifest</b> 59:8 <b>manufactured</b> 57:20 <b>March</b> 72:20 <b>mark</b> 30:8 <b>marked</b> 3:11 7:4 19:12 24:25 33:20 <b>marking</b> 22:19 <b>master's</b> 8:13 24:5 <b>material</b> 17:13 30:2 31:6,6 61:9,10,25 <b>materials</b> 28:2 60:13,21,22 <b>math</b> 34:14 <b>matte</b> 40:2 <b>matter</b> 4:7
---	--	---	---	--	--



72:6,11 <b>MCWHERTOR</b> 2:3 <b>mean</b> 34:2,22 39:25 58:21 <b>means</b> 20:1 47:24 54:14 58:23 <b>measure</b> 34:9 36:20 <b>mechanical</b> 16:25 39:9 <b>medical</b> 23:22 24:1 <b>Medina</b> 26:14 <b>Medina's</b> 26:23 <b>medium</b> 67:23 <b>member</b> 6:23 <b>memory</b> 26:6 <b>meter</b> 37:5 38:16 <b>method</b> 32:17 <b>methods</b> 53:8 58:14 62:4 <b>micrometer</b> 34:10 <b>micrometers</b> 34:12,21 <b>micron</b> 32:10 <b>microns</b> 60:7,8 <b>microscope</b> 8:19 15:14 15:18,22,24 16:3,21 18:2 22:6,17,18 27:23 29:7 29:25,25 30:3 31:24 35:23 47:17 48:9 53:13 54:10,18 55:4 56:2,14 60:10,11 66:20 67:24 67:25 <b>microscopes</b> 16:19 <b>microscopic</b> 61:17 <b>microscopy</b> 16:6 17:5,23 18:5,9 32:15 32:15,18,20 32:21 53:11 61:14 68:9 68:11,14,17 <b>microtoxins</b> 24:8 <b>Midwest</b> 6:24 <b>millimeter</b> 36:1 37:8 <b>millimeters</b> 34:16,21	<b>mind</b> 9:24 10:7 19:22 <b>mind's</b> 54:10 <b>mineral</b> 59:17 61:22 <b>minerals</b> 59:17 61:22 <b>Minneapolis</b> 4:3 72:5 <b>Minnesota</b> 4:4 5:25 6:6,14 8:7,12 15:19 21:23 22:2,7 23:8 24:5 72:1,5,8 <b>minor</b> 8:6 <b>mix</b> 13:10 <b>mixed</b> 11:5 <b>Mm-hmm</b> 12:4 55:16 <b>moderate</b> 38:6 38:8 39:14 39:14 41:1 41:21 42:2,9 42:25 43:1 44:7 45:3 <b>moderately</b> 61:8 <b>Modest</b> 22:25 <b>modified</b> 41:6 <b>mold</b> 11:18 12:5 13:2,5 13:11,13 14:4 36:4,6 37:8,20,25 <b>morphology</b> 62:6 <b>Morris</b> 8:7 <b>Motor</b> 3:8 4:8 5:5 20:8 25:16,20 26:9 47:9 51:2,6,13 53:4 66:1 <b>Motors</b> 47:5 <b>MOUNTAIN</b> 1:3 <b>mounting</b> 16:21 27:25 30:1 67:23 68:5 <b>move</b> 39:6,9,10 40:6 45:20 57:12 <b>moved</b> 30:22 <b>multiple</b> 8:19  <b>N</b> <b>N</b> 3:1 <b>N.G</b> 6:3,4,7,10 6:11,12 9:19 10:16,17 11:9 <b>name</b> 4:12,13	5:4 13:20 15:25 16:1 26:12,16 <b>names</b> 11:22 13:23 <b>narrow</b> 57:5 <b>need</b> 5:15 7:11 11:19 15:15 15:16 18:12 32:18 34:21 34:23 35:1 35:25 45:13 66:5 <b>needed</b> 6:25 <b>needle</b> 35:16 <b>negligible</b> 38:2 41:1,10,12 43:12,15,16 43:17,19,20 43:24 44:5,8 44:10,15,19 44:21 45:4 <b>Neil</b> 1:19 4:1,7 4:23 68:24 71:1 72:4 <b>never</b> 24:1 <b>New</b> 24:8 <b>Ninth</b> 4:3 <b>nonlegal</b> 19:1 <b>nonviable</b> 10:21 21:21 <b>North</b> 2:10 <b>notary</b> 71:11 72:7,23 <b>notation</b> 36:4 37:13 <b>note</b> 30:9 <b>noted</b> 36:17 38:6 71:2 <b>notes</b> 59:22 72:10 <b>noticed</b> 65:19 72:13 <b>notification</b> 15:7 <b>number</b> 3:6 4:9 9:10 31:4 33:7,8,11,12 33:13,14,22 35:19 37:1 37:12,19 42:12,13,14 42:15 45:9 45:17 47:18 47:22 49:6,7 49:8,9,10,15 49:21 50:12 50:19,21 51:13,14,18 51:18,23,23 56:6,10 64:12 <b>numerous</b>	39:22 <b>nursing</b> 23:23  <b>O</b> <b>oath</b> 72:9 <b>Object</b> 16:13 46:21 47:2 51:9 52:5 67:4 <b>observe</b> 41:8 54:18 <b>observed</b> 34:3 37:21 41:23 <b>obstruction</b> 49:14 <b>obvious</b> 56:16 66:19 <b>occasions</b> 8:19 <b>occupancy</b> 23:10 <b>oh</b> 10:6 18:13 20:12 60:7 62:4 <b>oil</b> 16:8 <b>okay</b> 5:11,13 5:15 6:7,13 7:4,18,25 8:4 8:7,17,25 9:3 9:15,19,22 10:6,16,25 11:8,16 12:1 12:13 13:3,8 14:1,10,24 15:11,17 16:7,11 17:2 17:8,12,15 18:8,15 19:3 19:11,13,18 21:1,11 22:20 24:1 24:12,14,22 24:24 25:14 25:25 26:14 26:17,20,21 27:5,9,22 28:4,21 29:5 29:11,17 30:12 31:23 32:21,25 34:14,18,24 35:18 36:3 36:23 37:7 37:10,19 38:3,17 39:5 39:11 40:6 40:14 41:14 41:18 42:7,8 42:11,19 43:8,20 44:5 44:10,24 45:20 46:6,9 46:14,19 47:5,7,12,15	47:20,22 48:4,21 49:4 49:6,15,19,21 50:1,8 51:21 51:25 52:12 52:16,24 53:3,9,19,25 54:4,7,10,19 54:21 55:2 56:1,12 57:18 58:8 58:21 59:6 59:23 60:24 61:3 62:4,18 62:23,25 63:17,19 64:19 65:2,7 65:10,19,22 66:18,25 67:8,9,13,19 67:21 68:8 68:17,20,20 <b>Olympus</b> 15:24 <b>once</b> 27:9 29:5 30:9 <b>one's</b> 7:16 <b>ones</b> 7:19,23 15:25 21:5 31:15 54:9 55:12 59:7 59:16 62:16 67:15,17 <b>online</b> 31:14 <b>opaque</b> 32:4,13 35:12 61:8,9 <b>open</b> 29:22 32:2 <b>opinion</b> 38:19 45:12 66:2 <b>opinions</b> 24:16 27:6 <b>opposed</b> 5:17 11:1 58:19 60:4 <b>optical</b> 32:19 58:9 59:2 68:10 <b>ordered</b> 72:13 <b>organism</b> 36:9 37:15 <b>organisms</b> 21:21 37:1 54:16 <b>organization</b> 21:24 22:21 <b>organizations</b> 21:3 28:23 28:24 <b>origin</b> 27:4 <b>original</b> 20:10 61:9 72:12 <b>outcome</b> 72:17 <b>outside</b> 32:19	65:10 <b>overall</b> 13:9 <b>owner</b> 9:19  <b>P</b> <b>P&amp;K</b> 7:15 40:21 <b>p.m</b> 4:4,6 64:23,24,24 65:1 69:3,5 <b>package</b> 15:3 <b>Page</b> 3:2,7,8,9 <b>Page/Ln</b> 70:2 <b>pages</b> 71:1 <b>paint</b> 59:8,9 <b>PALANDECH</b> 2:10 <b>part</b> 16:12 41:3 55:4 61:18 <b>participate</b> 21:5,22 50:15 <b>particle</b> 31:7 31:25 32:2 33:17 40:7 40:25 41:11 41:15 42:1 47:12 52:24 54:23,24 55:1 59:13 59:25 62:5 <b>particles</b> 17:25 18:6 20:22 27:3 30:5,6 31:11,13,16 31:17,20,24 32:9,13 33:8 33:12,15 34:2 35:19 35:22 36:19 36:20 37:21 38:14,16 39:9,22,24 40:2,4 41:8 41:23 42:2 42:12,17 46:2 47:18 47:25 48:2 48:10 49:3 49:11,12,17 49:18,22 50:2,3,3,5,12 52:1,2 54:17 55:7,23,24 56:6 58:15 58:16,22,24 59:6,8,9,13 59:23 60:2 60:13,20 61:16,20 66:19,21 67:2 <b>particular</b> 10:8 32:24 37:2
---	--	--	---	---	---

**Videotape Deposition of Neil G. Carlson - 2/28/2020**  
**Rocky Waters Mountain Inn, LLC v. The Travelers Indemnity Company of America**

Page 78

particularly 56:6,19	61:8	problem 11:19 37:18 56:16	28:22 29:16 40:13,24	referred 28:18 36:11	required 60:18
particulate 10:22 17:13	plaintiff 1:4 2:7 4:19	problems 35:14	46:8,10,15,18 46:22 51:11	referring 29:15 53:6 68:13	residence 15:14 25:8
parties 31:19 72:13,17,17	plan 23:3,8	proceed 4:22	53:6,15	reflected 68:12	residual 48:14
party 72:13	plastic 29:9	process 21:19 29:6 61:19	63:18 66:19	reflective 68:15,16	residue 8:21,23
Paul 6:20	PLC 2:3	61:19	questions 68:21,24	refraction 59:19	21:12 46:7
PC 2:10	please 4:15	produce 60:14	quite 45:24	regulations 65:12,14	48:22
PCG 11:21,23	plus 35:10 46:2	produced 31:7 31:8,10 36:8	<b>R</b>	related 7:2 12:5,5 26:1	respect 6:6,19
12:22,24	51:17 52:1	61:18	radius 34:19,19	72:16	7:23 8:1
13:18	point 7:21 8:17	product 61:7 62:2	range 9:11 11:3 14:7,13	relative 20:21 39:21	10:22 11:24
penicillium 36:9,13	11:11 25:14	production 60:19 61:23	20:20 34:12	released 61:23	12:3 19:20
people 11:8	41:14	professional 45:12	38:7 49:12	relevant 7:13 7:17,20,22	20:4,8 22:25
40:19 57:24	polarized 68:8	program 24:6	56:5 60:7	62:17	23:1,15 24:5
66:9	68:10	progressed 13:15	rate 72:14	reliable 38:20	25:15 26:9
percent 11:7	PONZI 2:10	project 23:14	ratio 61:12	relying 39:8	28:10,12,17
12:12,15,16	poor 46:22	proper 23:11	read 68:24 71:1	remediating 65:15	28:19 29:10
13:9,22 41:7	63:18	properties 25:23,24	reading 27:1 72:15	remediation 6:24 66:11	30:6,8 31:2,5
54:12 57:3	portions 7:1	26:13 58:9	really 34:21 35:14 55:12	remember 13:21 40:16	33:3,6 38:5
percentage 10:25 12:6	position 5:24 6:13	59:2	56:8 57:2,5,5	remodeling 23:13	46:16 47:9
13:14 49:23	positions 30:22	property 9:6	59:20	rephrase 5:22	49:23 56:22
56:24 57:6	possibilities 52:17	proportion 37:20 46:6	reason 36:7 70:2	report 3:8,9	60:18 67:20
performed 22:10	possible 27:4	46:10,16	reasonable 34:25	18:17,21,22	respond 27:8
person 37:14	post 23:5	51:22	reasons 51:25	18:23,25	restate 51:10
39:19	potential 51:25	protocol 23:20 45:16	recall 13:20,23 14:2,6 16:3	19:9,20 20:4	resulting 30:25
personal 11:16	precise 9:10	provide 19:4 20:16 21:3	22:12 24:11	20:7 24:22	results 19:4,5
12:7 13:3,7	prepare 18:25	public 6:2	25:13 26:4,6	27:2,6 28:2	20:18 61:8
personally 25:6 28:23	present 2:17 4:15 31:16	71:11 72:7	26:12,15	29:19 33:20	retained 25:3
45:19	40:4 67:17	72:23	27:7 29:9	47:8 49:6	retardant 65:4
persons 72:18	presented 29:18	publication 41:14	40:11,16,17	53:5 63:10	65:8
pertinent 8:14	President 6:3	publications 7:10	48:4 59:16	63:12,25	review 23:3,9
phase 66:23	presumption 59:5	purchased 30:18	receive 27:9,14 45:9	64:10 65:22	23:11 26:8
phone 2:5,12	presumptive 32:17 59:1	purpose 8:19 9:16 57:21	received 23:23 24:10 25:14	reported 72:4	reviewed 7:14
10:9 15:1,5	62:5	purposes 6:11	31:18	reporter 4:21 5:18	26:1,7 65:3
photo 10:8	pretty 62:8	put 7:9 18:22	recollection 26:23 27:5	reporter's 4:12	right 5:9 7:7
48:5,7	previously 28:19 68:7	54:2 68:7	recommendations... 65:15,19	Reporting 4:2 4:14	14:14 15:17
photographs 18:20,21	primarily 11:10 11:12 13:1,7	puts 56:9	record 4:6 10:3 35:4 64:23	reports 9:8 19:14 23:17	15:20 17:17
62:9,10,12,15	15:2,21 23:7	putting 18:23	65:1 69:3	26:7,8,11	20:3,10 21:9
62:19 63:3,7	31:6,8 37:2		recovery 38:22	39:18 40:18	21:25 24:25
63:9,16	38:4 41:5		red 16:22 57:16	63:6,16,20	27:7,9,18
64:14,15	54:15		reddish 54:20	65:20 66:1	29:14 32:22
photos 18:22	primary 10:19 37:3 41:23		refer 9:24 10:9 19:9 35:9	represent 5:5 12:11,12	33:21 34:11
22:16,17,18	prior 3:11 13:13		reference 36:4 36:6 58:18	52:15	36:15 38:12
pi 34:17	probably 5:10 7:19 9:13		references 31:14	56:21	38:14 42:19
pick 32:16,16	11:4,7 12:14			representative 56:21	42:25 43:17
32:18	14:8,22 19:8			representing 6:4	43:18 44:15
pictures 64:8	19:16 24:10			require 51:20 51:24	45:6 46:2
piece 10:8	26:15 27:13				48:2,18,18
16:25 30:25	35:11 40:23				50:23 51:5
56:22 59:20	41:12 49:12				51:17 53:4
pieces 6:22	62:16				57:20 60:10
place 29:19,24					62:4 63:25
30:1,2 40:12					64:4,7,21
placed 25:9					65:15 67:8
67:25 68:4,5					69:1
68:6					Road 2:3
plainer 32:1					Rocky 1:3 3:8

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room 27:22,23 33:22 36:15 37:19 41:13 41:21 45:21 47:23 rough 11:3 34:7 39:25 60:4 61:18 roughly 12:15 34:20 RPR 1:25 72:4 72:23 RUDOLPH 2:10 rules 5:11 run 17:12 runs 13:2 rush 18:12,13 18:14	64:15 65:2,5 65:23,23 66:3,13 sampling 23:20 52:11,14 saw 18:18 65:9 saying 15:5 22:3,4 39:20 59:1 says 33:25 47:23 49:22 53:10 54:12 58:14,21 62:4 scale 39:21 scan 55:6,18 56:17 Sciences 12:18 12:19 13:10 14:4 scope 16:2 45:13 Scotch 16:22 57:16 58:1,7 Scott 2:3,6 4:19,19 16:13 46:21 47:2 51:9 52:5 63:12 64:21 67:4,7 68:24 SEAL 72:20 second 11:20 26:3 section 33:10 40:7 53:7 see 7:12 8:4,22 10:2 14:7 15:9 16:23 20:2 24:17 29:12 33:18 33:23,25 34:17 36:22 36:25 37:23 39:12 40:1,2 40:3,8 45:21 45:22 46:7 46:11,19,23 48:4,5 49:13 49:21 50:5 52:25 53:24 55:11,13,14 56:5,5,10 57:9,10 58:13,16 59:14 63:4 63:11 65:7 66:8 67:16 seeing 26:4 31:3,3 48:10 57:13 67:15 seen 12:24 39:17 57:23	seminar 24:7 40:21 seminars 7:10 send 25:3,3,5 sending 11:24 39:19 sends 14:24 sense 42:17 sent 13:19 25:9 separate 18:10 54:16 September 10:23 Service 30:21 session 6:22 20:20 set 15:14,17 23:10 27:23 45:13 sets 26:8 setting 16:9 settled 39:7 seven 63:5 shadows 57:11 sharp 32:4 61:13 Sharps 27:24 30:10 sheet 70:1 71:3 sheetlike 61:11 sheets 32:6,7 shifted 13:12 13:14 ship 25:8 show 7:4 shown 51:12 51:14 shows 31:12 side 27:24,25 29:24 sign 27:12,14 27:15 68:25 Signature 71:7 significant 23:19 37:12 41:1 44:2 signing 72:15 similar 11:23 11:23 31:17 36:8 40:19 40:22 46:10 58:24,25 59:12,15,18 60:15 sir 5:8,14,16,20 5:23 6:9,15 7:3,6 9:21,24 10:4,7 11:12 12:19,21 17:20 19:9 20:2,5,9,12 20:15 22:22 25:1,13,21,24	26:19 36:14 68:22 sit 26:22 37:7 40:14 six 63:5 64:9 size 32:10 34:5 34:6,6,8 35:18 60:7,8 sized 61:16 skin 48:14 skip 45:1 slide 29:7,23 29:25 57:25 67:24,25 68:4,5 slides 16:21 slight 54:20 slightly 7:25 33:3 41:6 59:8,19 small 32:11 33:11 56:18 smaller 50:6 60:1 Smith 2:18 4:13 smoke 7:15 42:18 66:9 snapshot 66:13 sole 9:19 solid 66:23 solid-phase 66:21 somebody 11:19 somewhat 31:17 59:12 59:18 67:10 soot 7:15 8:23 9:16 10:23 11:13,13 12:6 13:14 13:16 14:5 14:16 18:11 27:2 28:11 28:13 30:13 31:5,7,9,11 31:13,15,19 31:23 32:9 33:7 37:3,21 38:1,2 41:24 43:12,15,17 43:18,19,20 43:25 44:5,8 44:11,15,19 44:22 45:4 46:4,6,11,17 46:19,24 48:11 49:1 50:4,12,16 51:5,6,12,14 51:18,18,22 52:1,2,13	54:17 55:9 58:24 59:1,2 59:6,15 60:2 60:5,20 61:4 61:15,16 66:16 67:1 67:20 soot-like 20:22 30:5 40:7 42:1 47:12 49:3 52:24 58:15,21,21 59:12,24 sorry 6:10 10:4 42:7 47:3 62:21 sort 12:8 30:7 32:4 41:15 55:25 sounds 14:15 64:1 source 8:24 9:9 9:9 37:15 39:16 South 4:3 southwest 27:19 space 37:16 speaks 64:2 specialist 6:2 specific 7:23 8:3,16,22 18:5 21:7,11 21:14,23 26:23 28:25 31:15 37:4,9 60:21 65:19 68:16 specifically 8:14 29:9 57:21 65:14 66:24 specify 9:8 spectrum 61:24 speculate 51:20,24 sphere 60:3,6 spheres 59:11 59:11 spherical 32:10 spheroidal 60:3 61:16 split 27:21 spore 10:17,21 21:16 spores 11:2 12:5 21:15 36:5,6,7 37:2 37:5,8,8,20 37:25 38:8 spot 28:2 37:14 57:12	spots 32:3 35:12 spray 59:9 square 34:15 36:1 45:18 St 6:20 stage 30:3 stain 54:12,15 stand 12:22 standard 5:11 41:15 45:16 start 28:12 55:10 started 10:23 10:24 13:12 14:21 State 72:1,8 stated 20:23 States 1:1 4:10 stating 20:24 stays 54:8 strenographic 72:10 Stephen 2:18 4:13 stop 35:1,4 straight 19:1,2 Street 2:10 4:3 19:21 strictly 60:16 strike 35:3 63:13,18 structure 11:23 structures 61:17 67:12 stuck 54:10 students 6:18 stuff 23:3 styles 30:19 31:1,2 submicron 61:16 subrogations 40:22 substance 12:10 61:4 substances 49:24 substantial 72:18 Suffice 25:14 48:21 suggesting 37:14 suggestion 27:3 Suite 2:4,11 4:3 sure 9:12 10:1 11:10 12:23 14:6,11 16:15,17 19:15,24,25
---	--	--	--	--	---

22:3,15 24:20 26:3 29:8,13 35:15 38:6 48:6 50:22 54:15 59:4 60:22 67:9 68:3,4,13 surface 38:20 38:22 39:4,5 57:21 58:3,3 suspension 66:8 swear 4:21 switch 58:1,3 sworn 4:25 72:6 system 23:9 systems 23:12	6:21,23 teaching 6:14 6:15,17 tease 18:1 27:24 35:10 41:5,7 52:14 56:7 68:1,4 technique 36:9 68:14,15,16 68:17 telephonically 2:7 tell 12:6 22:16 38:7 49:16 51:21 56:24 57:11 72:6 temp 60:17 temperature 31:8 52:11 60:18 tend 32:10 38:23 60:16 tendency 72:18 tends 39:4 Tennessee 1:1 2:4 4:11 term 66:17,23 terms 13:8 30:12 32:25 34:14 35:18 39:14 61:24 65:15 terribly 57:8 test 17:12 testified 52:6 56:12,12 testifies 5:1 testimony 22:5 thank 4:20 5:23 10:4,7 53:20,21 54:4 68:21 thereof 72:8 they'd 7:19 thin 32:6,8 61:12 thing 19:7 27:11 51:5 51:12 think 6:11,12 7:13,16,19,23 13:6,6 16:25 20:12,19 21:5 26:3,15 26:16 27:13 34:11 35:9 40:12,20 41:3,12 52:5 54:11 56:12 62:8 66:5,22 third 31:18 third-party 31:21	thorough 59:3 thought 53:13 65:7 thousands 49:18 three 54:21 59:23 62:10 62:15 63:4 64:15 67:12 time 4:6 5:15 18:22 19:16 30:20 59:21 63:25 64:23 65:1 66:3,7 66:12,14 68:21 69:3 times 5:9 9:15 14:3,16 32:22 34:17 56:25 57:3 tint 54:20 tiny 60:5 titled 39:11 today 26:22 37:7 40:14 told 57:19 Tom 12:20 30:15 40:12 top 29:25 30:2 41:17 54:1,5 54:8 59:16 topics 7:2 total 42:12 47:18 63:6,7 63:20 64:4 touched 62:8 toxicologist 24:12,15 toxicology 24:3 24:4,6 trace 30:8 33:6 33:16 38:13 39:12 41:20 42:4,9 47:15 47:23 49:9 49:15 56:23 65:7 traces 53:10 65:4 trained 17:15 training 8:13 23:22,23 24:3,4 30:12 31:18,22 transcribe 5:19 transcribed 72:11 transcript 71:1 72:10,10 Travelers 1:6 4:8,18 5:5,6 trigger 24:19 triggers 27:8	true 19:19 20:7 47:8 72:10 truth 72:6,6 try 37:16 trying 13:6 20:12 48:25 52:14 55:9 59:21 Tweezers 16:25 two 6:22 11:10 15:13 16:18 18:10 26:8 36:10 55:14 63:4,6,11,20 type 17:14 23:2,10 29:14 32:3 33:8,12 41:8 47:19 55:19 types 11:8 18:6 47:25 48:2 48:21 49:1 59:23 60:21 typical 36:24 45:9 46:6,10 typically 6:22 16:8,9 29:8 31:25 32:9 33:4,5 36:20 37:16 41:5 48:10 50:2 55:6,16 56:3 59:7,10,11 60:1,2,6 61:7 61:8,19,22	16:5,8,17,21 16:21,21,22 16:23 22:1,6 22:7 35:19 46:11 54:15 57:19,25 58:6,7 68:8 68:12,19 uses 57:14 usually 36:23 64:2  V v 1:5 4:8 variability 39:3 56:10 variable 38:23 39:4 45:11 variables 38:25 varies 12:11,14 12:15 57:2 variety 11:17 31:2 ventilation 23:9 versus 5:5 viable 10:21 video 31:11 videographer 2:18 4:5,13 4:20 64:20 64:22,25 69:2 Videotape 1:17 4:1 72:4 videotaped 4:7 view 54:24 viewed 53:11 54:21 viewing 35:23 56:25 virtue 72:8 visual 17:5,24 visually 30:4 30:13 31:19 58:25  W wait 5:11,12 waived 72:15 wall 36:15 37:20 want 14:19,25 17:9 26:3 44:25 53:8 55:5,11 59:3 67:8 water 23:2 35:5 Waters 1:3 3:8 4:8 5:5 20:8 25:16,19 26:9 47:5,9	51:2,5,13 53:4 66:1 way 6:5 15:7 25:25 33:16 40:19 41:4 61:1,6 ways 15:2 25:5 25:8 30:17 we're 22:3 29:15 67:13 we've 7:4 13:15 29:14 49:15 56:16 62:8 64:4,17 webinar 7:14 welcome 68:22 went 53:13 wide 11:17 57:5,6 width 32:7 61:13 wildfire 7:2,3 7:22,24 8:2,3 8:14,15,16,20 8:23 9:6,10 46:7,20,25 65:12 witness 4:21 4:24 52:8 64:19 67:5,8 68:22 69:1 72:5,20 wondering 60:12 wood 30:19,20 30:23,25 31:1,7 45:21 46:12 52:2,3 words 33:15 39:23 41:4 55:21 66:21 work 6:3,7 10:19,25 11:21 12:3,7 13:1,2,8,9 15:21 24:8 45:10 wouldn't 8:22 9:7,24 50:4 write 29:17 write-up 28:1  X X 3:1 xerogel 67:1  Y yeah 12:3,9 18:14,16 19:10 20:1 20:16 22:5 25:17 29:3 35:2,21,24,24
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**Videotape Deposition of Neil G. Carlson - 2/28/2020**  
**Rocky Waters Mountain Inn, LLC v. The Travelers Indemnity Company of America**

Page 81

38:2 42:22 43:1,1,3,5,16 43:19 50:25 51:10 52:8 52:18,20 53:2,25 55:18 57:19 62:7,11,14 67:15,22,25 year 11:1 12:14 years 10:13 yep 41:22 42:24 43:7 43:11,14,14 43:16 63:5 York 24:8 YouTube 31:11	13 3:8,9 44:7 14 44:10 1400 2:11 150 14:22 18:25 34:12 16 44:10 17 44:13 19 3:8 44:17,25 45:1,3	38305 2:4 3M 16:22 57:16 3rd 65:24 72:20	85 54:12
Z	2	4	9
Ziploc 29:9 zoom 35:11 55:5,8,10,14 55:16,24 56:2,3	2 3:8 10:23 19:14,19 20:3 24:17 24:25 33:20 33:25 34:2 35:19,22 36:3,16 39:11 42:2 45:21 49:7,9 50:19,22,24 51:1,14,19,23 63:2 64:4 2:25 64:23,24 2:33 64:24 65:1 2:40 69:3,5 20 3:9 5:10 9:13 44:21 50:12,15 56:10 60:7 63:20 64:5,7 200 9:18 14:8 34:12 54:24 2000 13:13 200x 53:11 54:22 55:7 2011 10:24 2018 3:8,9 65:25 2020 1:25 4:2 72:5,20 20X 16:4 222 2:10 25 12:12 33:5 33:13,15 28 1:25 28th 4:2 72:5	4 17:18,21 20:24 26:12 26:21,25 42:25 43:1 43:15 47:22 49:8,15,21 58:19 59:4 40 12:15,15 13:9 57:3 400 54:25 55:1 56:25 400x 33:5 34:7 52:25 53:11 54:22 407 36:15 37:19 41:21 45:21 40X 15:25 16:4 412 33:22 450 4:3,3 4th 65:24,24,25 4X 15:25 16:4	9 33:22 35:19 43:8,20,22 96 10:15
0			
1		5	
1 3:7 7:4 17:18 17:21,23 18:3,8 21:2,8 29:20 33:25 34:2 35:19 35:22 36:1 37:19,24,25 41:11,20,24 41:24 42:16 42:19,20 43:12 50:9 50:12 51:1 51:13,18,23 58:19 71:1 1,000 37:24,25 37:25 38:5 10 5:10 10:12 13:22 38:7 38:10 39:24 42:2 43:24 49:21 50:15 53:15 54:1,8 57:2 100 9:14,18 34:20 54:24 100x 53:11 54:22 55:2,7 55:21 105 47:23 10x 15:25 16:4 53:15,15 11 63:7 12 44:2 50:9,15 12:55 4:4,6	3 3:9 19:14 20:6 24:17 47:4,8 49:6 53:5 60:7 62:9 64:10 3:19-CV-6 1:5 4:9 30 50:12 56:11 60:8 30-liter 38:18 312.863.5000 2:12 35 18:10	6 43:6,17 60 32:22 53:16 53:24 54:1 600 14:9 53:14 54:2 57:16 58:1,7 60601 2:11 60x 15:25 16:4 16:7 53:13 53:14 69 71:2	
	3	7	
		8	
		8 49:21	

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